Defining design as a discipline:
A framework to help designers conceive and evaluate definitions

MDes Thesis

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Dedicated to my loving parents.

Abstract

A significant part of a discipline's maturing process is the development of philosophic foundations. These foundations help define central concepts, scope of the field and evaluation criteria. According to several prominent design researchers the discipline still has considerable work to do to establish these foundations.

The first foundational task – definition of central concepts – is the focus of this research. How one defines central concepts or the field itself is still very contentious. Although it is well documented that "design" is a highly ambiguous term which is problematic for the field as a whole, some designers are resigned to this fact since it is unclear how one can resolve differences of opinion about what such a central and sensitive term means.

Through this thesis research, I have developed and tested a framework to assist design researchers, educators, practitioners and those in related fields to design with the complex yet foundational task of defining design.

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1. Introduction

In my second year of undergraduate studies in computing science I was introduced to the field of graphic design by my art fundamentals instructor. I do not recall exactly why he suggested that I enrol in the Bachelor of Design program but once I looked into the program I quickly realized that it was an excellent combination of my skill set: artistic abilities and an analytical mindset. Going into the program, and after a year of study within the program, I had a strong sense that design was a discipline that focused on creating functional artifacts but with an emphasis on the meaning and form of that artifact. Architecture's long history concentrating on these aspects of buildings and the popular disciplines of interior design and fashion design seemed to bear out this notion of design as well. But, as I continued in my undergraduate program and read articles by influential design thinkers Victor Margolin and Richard Buchanan (1995) and frequent references by other design thinkers to social scientist, Herbert Simon, I learned that design was a much broader field, that encompassed any type of planning "aimed at changing existing situations into preferred ones" (Simon, 1969). I also learned that design, within the applied arts context (i.e. industrial design, graphic design, fashion design), doesn't have a monopoly on the term. Other fields such as engineering, computing science, business and education use the term frequently to discuss the type of planning they do (Ralph & Wand, 2009). This major shift in the scope of the discipline of design made me question the nature of my degree. If design is so broad and no longer has a specific interest in the meaning and form of artifacts why did my education *in* design begin with a foundation in the fine arts? In fact, why do the

majority of post-secondary programs in design begin with a foundation in the fine arts when more and more leading design thinkers argue design is much broader than this?

This anecdote demonstrates the major gap between two definitions of design and the serious questions that such a gap conjures up. Many others in a wide range of disciplines have noted there are a multitude of definitions of design not just the two I mention above (Bamford, 1990; Galle, 2008; Heskett, 2001; Poggenpohl, Chayutsahakij & Jeamsinkul, 2004; Ralph & Wand, 2009). According to systems designer and educator Terence Love (2002), design has "different meanings in different domains, [is] used in different ways by researchers in the same domain, and [is] found in the literature referring to concepts at different levels of abstraction" (p. 347). This ambiguity has resulted in theories and research where accounts of design are "contradictory," causing confusion about which findings are actually applicable from one domain to another (p. 347). More recently, the director of the Centre for Philosophy & Design (CEPHAD), Per Galle (2008), warns design researchers and thinkers to be wary of an "insidious inconsistency" that exists between the various competing notions of design. He calls the problem insidious because he believes some designers are not even aware that inconsistent, or worse, incompatible notions of design are used between research papers that reference each other. He argues that designers must "resist" inconsistencies in their arguments that may hide genuine disagreement about what design ought to mean in a given context.

A significant reason this inconsistency is insidious is the ambiguity of the word design in common use, especially where meanings overlap. Design has a

range of meanings from the abstract: a plan, a deliberate undercover scheme, the arrangement of elements in a work of art; to the specific: a preliminary sketch or a decorative pattern (Merriam-Webster, 2011). To demonstrate how confusing using the word design can get, design writer and educator John Heskett (2001) provides the following sentence: "Design is when designers design a design to produce a design" (p. 18). He then explains how all four uses of design are each a different sense of the word:

> The first usage is as a noun, connoting the field of design as a whole in a very general manner, as in the phrase: "Design is important to national economic competitiveness." The second usage is as a verb, meaning the action or thought involved in the act of designing. The third also is a noun; this time connoting a plan or intention. Finally, the fourth usage again is a noun, this time meaning the finished product. All the usages have very different meanings, yet even people professionally involved in design continually slip between them, seamlessly moving from one meaning to another without distinction (p. 18).

Few other disciplines are the victim of such a high number of multiple meanings or polysemy. While almost all words in our language are polysemic, design is particularly so. To make matters worse, the many meanings are very closely related. A very common error is to equate the noun "design," used to describe the discipline or field of practice (i.e. "architecture is a subdomain of design"), with the more general verb design, used to describe planning or scheming (i.e. "that football play was by design") (Bamford, 1990, p. 6). This ambiguity begs the question for designers: which sense of the word are we using to define the discipline or, is it

even one of the definitions given in Heskett's quote? If it is another definition, how does one formulate a new definition? How does one develop arguments for a definition and how are these arguments evaluated? As these questions suggest, the process of defining design is complicated. The difficulty for designers is they lack the philosophical background to navigate these questions, which according to Richard Buchanan (2001), is the source of the discipline's difficulty with definition:

> Efforts to establish a new field of learning require a definition of the field, and design is no exception. Unfortunately, our community has often foundered on the problem of definition. The literature is filled with contrasting and sometimes contradictory definitions of design, and efforts to define design have often led to acrimony. I have watched this struggle unfold, and I am grateful that the disputes have tended to die down in recent years. There has been an unfortunate misunderstanding about the nature and use of definitions, and this has caused our discussions to become unproductive and wasteful of time and energy (p. 8).

Some may argue that definition should be left for philosophers due to its complexity, but the following quote from Edward Schiappa (2003), author of a book concerning definition, reminds us of the central role designers must play in defining design: "definitions put into practice a special sort of social knowledge — a shared understanding among people about themselves, the objects of their world, and how they ought to use language" (p. 3). As designers, we maintain this shared knowledge through communities of research and practice, making us experts on how to define our world. So, if designers must play a central role in definition, we must clarify the process itself to make it more productive for

designers.

Both Love and Galle suggest remedies to this issue by offering a set of criteria in which to evaluate competing "definitions" (Love, 2002) or "theories" (Galle, 2008) of design. While Galle's exploration is more detailed, in both cases, the analysis of definition and list of criteria for evaluating definitions is very limited. This limited explanation of definition — its types and issues, methods and evaluation criteria — is common to many articles that discuss theories or definitions of design (Bamford, 1990; Buchanan, 2001; Poggenpohl, Chayutsahakij, & Jeamsinkul, 2004; Ralph & Wand, 2009).

Research objective

The objective of this research is to fill this gap by providing design researchers, educators, practitioners and those in fields related to design, a greater understanding of the process of defining design. As Galle and Love note, such an understanding is not an end in itself, but is directed toward a strengthening of design theory and philosophic foundations of the field as a whole. On a day-to-day basis, this strengthening can have a direct impact on design educators, researchers and practitioners. For example, a group of design educators at the university level can use a definition of design as a starting point for long-term curriculum planning. Design researchers can use a definition of design to determine the scope of their research, while design practitioners can use a definition of design to explain their role on a project team when working with other disciplines.

To support the overall goal of illuminating the process of defining design, a framework is presented that designers can use and build upon to clarify the

process of definition. This framework includes two major components: the first is conceptual and provides theoretical support for the second practical component. The conceptual component includes:

- arguments for the value of defining design and in what contexts;
- arguments for why designers, and not just philosophers, ought to be involved in the definitional process. Flowing from this, arguments that designers require a better understanding of the process; and,
- a survey of definition and proposal for a particular type to be used when defining design.

The practical component includes a workshop structure and exercise in which designers and design stakeholders are provided an overview of the concepts noted above and then given the chance to explore their own definitions of design using the proposed method of definition.

Chapters 2 and 3 of this thesis constitute the conceptual component of the framework. In Chapter 4, I will explain the workshop and how it was tested using three different audience groups, each of which have different reasons for wanting to explore concepts of design:

1. four graduate students in their first year of the Design Studies program at the University of Alberta, who need to discuss design to frame their own research;
2. three visual communication design instructors who teach undergraduate students at Grant MacEwan University, who are in the process of revisiting their overall curriculum development; and,

3. four faculty members from four different departments at the University of Alberta; all of which have a meaningful connection to design and were keen to learn about design from different perspectives.

Chapter 4 will also explain how this workshop could be used in other contexts, not just academic but within design practice and policy development related to design.

Chapter 5 provides a summary and analysis of the participants' feedback, discussion and exercise results from these workshops. This analysis is used to provide not only an evaluation of the workshops but the overall framework. Some conclusions are drawn in Chapter 6 along with thoughts on how this framework and workshop could be used in the future.

The overarching goal of this framework is to raise awareness of the value of exploring definitions of design (and other central concepts) while equipping designers with some basic methods so that they can engage in this exploration in a meaningful, purposeful and constructive manner. This goal will be achieved formally through publishing academic papers and conference presentations, and the information will be disseminated informally through the Internet. Making this research available on the Internet will be important to reach design students and practitioners who may not read academic journals or attend academic conferences on a frequent basis. Additionally, blogging tools such as Wordpress, provide website visitors an opportunity to engage with the framework and participant responses by posting their own responses — creating the potential for a broader dialogue. To this end, a website has been created which will act as a virtual space in which a larger audience can learn about the process of definition and engage in a dialogue about their definitions of design. The design and promotion of the

website will be discussed in Chapter 6, but evaluation and analysis of any activity on the website beyond the launch is outside the scope of this research.

The primary focus of this research is on definitions that try to define the discipline of design, though, other senses of the term are relevant to the discussion. For example, design as a "plan or intention" is very closely related to contemporary definitions of design as a discipline. It will be important for the reader to be aware of these relationships to help unravel some of the problems in defining design as a discipline. In the context of this research, discipline is used in the following sense: "a field of study or practice."

Definitions can come in many forms, which will be explained further in Chapter 3. In philosophy, exploring the meaning of a word, is also referred to as conceptual analysis (Bamford, 1990). In the context of this paper and the framework in general, definition of design includes any discussions or writings that try to explicitly define the word "design." This ranges from definitions that are only a single sentence long with no explanation, to definitions that are many pages in length, as part of a much larger theory of design that tries to relate a system of concepts. As with discussions of definition in philosophy, an important value in discussing definitions of design is not simply to arrive at a specific definition, but rather in the process of discussing and clarifying what we mean by the term. The value of this process will be highlighted in both the conceptual and practical components of the workshop. Finally, while the following exploration of definition will be relevant to all core concepts in design, this paper and framework focus on the term that defines the field itself.

2. Why Definition Matters for Design

This chapter develops a case for why designers should care about the definition of design. Establishing why definition matters is a critical first step in this overall framework. If one does not see the need to define design, learning about the process of definition is moot. Ignoring this first step is one of several reasons why debates about definitions become unproductive. Rather than debating real differences of opinion on how to define design, discussants may instead just be disagreeing about the value of the whole enterprise. This is a common occurrence on the PhD-Design email list founded by design educators David Durling and Keith Russell (Margolin, Summer 2010). This email list began in 1998 following a major design conference in Columbus, Ohio. To this day, the list serves as a less formal and more immediate method for discussing design theory than academic journals and conferences provide. Well-known researchers and educators, such as Ken Friedman, Donald Norman, Victor Margolin, Terence Love, David Sless and Klaus Krippendorf discuss major design research and education issues on the list. Since the list's inception, debates about the definition of design come up almost on an annual basis. In the more protracted debates, some discussants argue that definitions are of little value (Hunsinger, 2011). Common reasons why one may argue defining design is of little value to designers are: there is no practical need, in other words, design educators and practitioners can and do work without an explicit definition of design; no definition could properly encompass all the various types of design; or, it is impossible for everyone to agree on a single definition. The first reason is addressed at length in this chapter, by showing concrete examples of

how explicit definitions of design are not just valuable, but essential tools. The second and third reasons are better addressed through explaining the types and issues related to definition, which are discussed in Chapter 3. For now, the short response to these claims, is that defining design does not necessarily mean one must develop a definition that will encompass all types of design, nor does it necessarily mean everyone must agree on the definition.

To begin this discussion about why definition matters for design, it is useful to consider when and why definitions matter in general. Outside of philosophy and law, definitions are normally quite mundane since the majority of the time we have strong tacit agreements about the words we use in conversation. Edward Schiappa (2003) — philosopher, rhetorical scholar and the central author used for this summary on definition — notes that definition as a method is not even required for good communication since a shared vocabulary is learned through a variety of social contexts that are far less formal (p. 28). This seamless communication does break down when we encounter a new or uncommon word, but referencing a dictionary or asking for a definition often will clarify the matter quickly.

Definition, though, is far from mundane when the use or application of a term is disputed or has broad ramifications, for example, in legal or academic communities (Schiappa, 2003, p. 33). In these cases, simply referring to a dictionary definition is not sufficient because it is not a matter of learning a new word, but rather a debate about which definition *ought* to be used or modified within a given context. In a scientific context this may require an adjustment of an existing definition to better reflect new scientific knowledge. This was the case for the

astronomical community when new objects larger than Pluto were discovered in our solar system, forcing a redefinition of the term "planet" (Walton, 2008). In the legal or political context this may require a difficult choice between definitions that present very different value systems. The word "person" for example became the focal point for debates in the United States regarding abortion. The courts determined that a fetus was not a person under the Constitution, and therefore aborting a fetus did not "deprive any person of life" (Schiappa, 2003, p. 90).

While design is not a value-laden word (at least, not on the surface) nor impacted by discoveries in science, it does involve a large community whose definition of the term has significant implications. For design researchers, defining design can impact the philosophic foundations that design theory rests upon. For design educators, defining design can be an essential tool for curriculum planning. For design practitioners, a definition of design can impact how one communicates their role on an interdisciplinary project team. To put in focus the connection between the definition of design and designers the following is a summary of these three examples.

Benefits for design researchers

To discuss the impact of definition on design researchers, I turn to two papers: "Language definition and its role in developing a design discourse" by Sharon Poggenpohl, Praima Chayutsahakij and Chujit Jeamsinkul (2004); and, "Constructing a coherent body of theory about designing and designs: some philosophical issues" by Terence Love (2002). Both papers present a summary of

the state of design research and the authors both argue that design must develop its own research discourse rather than rely on other disciplines to strengthen its theoretical development. Most importantly, they argue that integral to these goals is the definition of design and other key terms within the field. According to Love (2002), there is growing interest "in the development of a unified body of knowledge and theory about designing and designs" (p. 345). This interest is shared by Poggenpohl et al. (2004), who argue that design research and practice would be well served to have its own "core knowledge" which would lead to the development of "an intelligent discourse" (p. 588). While Love (2002) believes creating a more unified body of theory is gaining interest among design researchers, it has "not yet emerged in spite of extensive research undertaken over several decades, across several hundred domains of practice, and from a wide variety of perspectives" (p. 345). Both papers list several key reasons for this lack of emergence. According to Poggenpohl et al. (2004) there is a range of "stronger, weaker, or virtually nonexistent discourse traditions" in different sub-disciplines in design (p. 588). Overall, "[d]esign does not have a strong tradition of reflective or critical writing, perhaps because much design knowledge is tacit and formalizing this knowledge through language is difficult" (Poggenpohl et al., 2004, p. 588). For a demonstration of this, the authors point to design discourse which is "dominated by trade magazines that follow trend and fashion in practice" (Poggenpohl et al., 2004, p. 588). While Love (2002) does not evaluate the quality of research in design, he does emphasize that it is often "tied" to the subdomain it was created within (p. 346). So, even if we found strong research within a subdomain, according to Love, it is not being, or cannot, be shared with the other subdomains in design. For Love

(2002), this inability to share research between subdomains feeds into what he sees as a fundamental reason design has not seen a unified body of theory emerge: "a lack of philosophical foundations" (p. 346). These foundations would include: agreement upon "core concepts and terminology" in design to clarify "the scope, bounds and foci of fields of research and theory-making about designing and designs"; greater investigation into epistemological, ontological issues in design; and lastly, better "integration" of design theory and "other bodies of knowledge" (p. 346).

One could argue that definition is a primary philosophic goal since one's definition of design will inform the next two goals: epistemology and integration with other disciplines. This is a point not lost on Poggenpohl et al. (2004), who see the the task of definition as central, having an impact on design in mundane yet highly practical ways, from effective "tagging" of research (p. 579), to wider foundational implications such as:

> how the design profession envisions itself—as a craft or a discipline; how curricular programs in design need to change or not based on its accepted definition; what other disciplines can hope to learn from design and its research; how design research can improve knowledge and performance in design practice. (p. 590)

Poggenpohl et al. acknowledge there are critics of the creation of a unified body of theory. They argue these critics disagree because "design is necessarily a synthetic discipline" and, therefore, can rely upon research from research-based disciplines such as "human-computer interaction or social science" (p. 589). While they agree that design is a synthetic discipline, they disagree that this means it cannot have

its own internal discourse. More importantly, they argue that "a lack of a specific design discourse with ongoing development, argument, criticism, research findings, etc. hampers development of design as a discipline and prevents design from contributing its knowledge more broadly" (p. 589).

An additional argument against unification includes the benefits that pluralism brings to the field. Richard Buchanan argues "one of the strengths of our field is that we hold different views" (2004). Philosophy of design researcher, Per Galle (2008), responds directly to Buchanan by cautioning that there are limits to this pluralism:

> [I]t is in the interest of the very same research community — and of community at large — that disintegration of design theory into rivalling design theories does not get out of hand. As researchers we have an obligation to produce theory that is generally credible and widely sharable outside our own circles; but the more such disintegration we allow, the less credible and sharable our products become. (p. 268)

While it is outside the scope of this research to settle this debate, Galle argues that even if pluralism is to exist within design, it is critical that design researchers make their theory of design explicit. As mentioned in the introductory chapter, Galle believes "insidious inconsistencies" exist between the various competing theories of design, a problem that stems from the ambiguity of the term and a lack of explication of one's "worldview" (p. 269). This value of articulation is echoed by design researcher Ken Friedman (2003):

> The challenge of any evolving field is to bring tacit knowledge into articulate focus. This creates the ground of shared understanding that

> builds the field. The continual and conscious struggle for articulation is what distinguishes the work of a research field from the practical work of a profession. (p. 13)

For Freidman, defining design is a foundational exercise in which design researchers must engage.

Benefits for design educators

Design educators can also benefit from making their definition of design explicit. In fact the same philosophical foundations that Love lists in the context of design research, applies to design education. Understanding "the scope, bounds and foci" of the design field has a direct link to curriculum planning, allowing design educators to provide reasons for course selection and content within an undergraduate program. This is true not only for curriculum planning within design but for interdisciplinary course selection and "integration." For example, if a school defines design as an applied art, then it would make sense for that school to provide students with courses in the fine arts. Additionally, a "greater investigation into epistemological" issues in design has direct implications for how design educators evaluate student work. Whether work is evaluated according to formalist fine art criterion or through social scientific testing methods, or both, the evaluation requires criteria informed by theory.

Highlighting this close connection between design research and education is Nigel Cross (2006), in his book *Designerly Ways of Knowing*. Cross argues for a general design education similar to the kind of art or science education seen in all

K-12 schools worldwide. He sees this project as one that requires the work of design researchers and educators. For both, a primary task is clarifying design as a discipline. For educators, the process of creating curriculum for a general design education "forces us to consider the nature of this general subject of design, what it is that we are seeking to develop in the individual student" (p. 13). In particular, he argues that relying on a tacit understanding of design simply isn't sufficient:

> It may be satisfactory, or at least understandable, for practicing designers to be inarticulate about their skills, but teachers of design have a responsibility to be as articulate as they possibly can about what it is they are trying to teach, or else they can have no basis for choosing the content and methods of their teaching. (p. 9)

Design researchers, in turn, contribute to this explication through their understanding of the "general features of design activity that are common to all the design professions" (p. 12). For our discussion concerning definition, Cross argues that the first step in developing this education program is "more research and enquiry" into design, or what he calls "designerly ways of knowing" (p. 13).

More recently, Victor Margolin (2010) has made the same case, but in the context of doctoral education. He argues that doctoral education in design has become too disparate and is in need of a "core curricula" (p. 76). While he provides several reasons for this development, he believes a major cause is "a lack of consensus as to how we identify the subject matter of design" (p. 71). He also argues for the value of clarifying one's field, which he believes provides those outside the field the ability to access the "potential for significance and value" of

one's field.

So, as with design research, design education starts with a clear conception of design. As noted above, the next step is considering how one's concept of design impacts design epistemology, that is, how one evaluates designers and their designs. An article by design educator and researcher Jorge Frascara (1998): "Graphic Design: Fine Art of Social Science?" demonstrates this connection. As the title indicates, Frascara considers whether fine art or social scientific standards should be used to evaluate graphic design products (and one could argue design products in general). He argues that much of the design literature has judged graphic design based on fine art criteria of aesthetics, whereas, it should be judged based on appropriateness and effectiveness ("changes it produces in the audience") (p. 23). Later in this article, Frascara discusses how these criteria ought to be reflected in graphic design education. This article demonstrates the link between one's concept of design and one's criteria for evaluating design. In providing his justification for why design ought to be judged by more than just aesthetics, Frascara provides a definition of graphic design:

> the activity that organizes visual communication in society. It is concerned with the efficiency of communication, the technology used for its implementation, and the social impact it effects, in other words, with social responsibility. (p. 20)

The full definition is much longer, but this excerpt is sufficient to show how an argument for quality in design starts with a concept of design. Without this definition, on what basis could one argue for or against Frascara?

Frascara then links this definition and the related criteria for evaluation to design education. He uses these to answer the following questions: "What skills do [students] need to develop?"; What is the potential scope of a graphic design school?; How do you "balance between artistic and rational elements in the practice of graphic design?"; How should undergraduate and graduate education differ?; What sort of relationship should education have with industry?; What relationship does graphic design have to other disciplines? (Frascara, 1998)

In his article "Design Research and the New Learning", Buchanan (2001) uses a very similar approach. He defines the discipline first and then maps out how design could to relate in the university using this definition. In the same issue of *Design Issues*, design educator Alain Findeli (2001) uses a similar approach in his article "Rethinking Design Education for the 21st Century". For his description of the Bauhaus, New Bauhaus, Ulm schools and his own proposed education model, he links the overall pedagogic approaches to their concepts of design. In each case, the pedagogy is dependant on the definition.

Benefits for design practitioners

The link between one's concept of design and real-world problems has a similar foundational quality for practitioners. Many practising designers have a tacit understanding of design that informs their work, how they deal with their clients, which methods or processes are used on which project, and also how they determine whether they have achieved an appropriate solution. For many, this tacit understanding likely came from popular culture or from their education

(which highlights the important connection between definition and education discussed above). This tacit understanding may serve a designer well while their project briefs remain relatively constant and their work strays little from their specific sub-discipline (i.e. graphic design, fashion design). But, when a designer is faced with an out-of-the-ordinary project brief or asked to do work that strays into other disciplines, this may require a rethinking or re-justification of the designer's concept of design. It is in these cases that the value of an explicit definition of design comes to the fore. Making a link between design theory and daily practice is important to demonstrating the need for having an explicit definition of design. An example of this link is evident in the recent interest in complexity in design. Design practice has faced greater complexity as the field has grown and matured over the past several decades (Buchanan, 1992; Meurer, 1999; Nussbaum, 2004). This added complexity comes from several sources, including:

1. A growing emphasis on *research and methods* in design, borrowing largely from more established disciplines such as psychology, sociology, anthropology, marketing and engineering (Frascara, 1997; Meurer, 1999).
2. A greater awareness in the business community (and to some extent the general public) that design plays a *central role in product and service development*. Thus, designers have seen their roles expand from stylist to "strategic consultant" (Brown, 2008; J. O'Grady & K. O'Grady, 2006, p. 10-11).
3. A recent *expansion of new media and technology*, such as the Internet, social networking and mobile computers/phones in which a designer can deliver a message or product through. Resulting from this, designers must expand their understanding of the uses of each new medium and how they

relate to and integrate with traditional media.

4. A greater emphasis on *social responsibility, ethics and environmental stewardship*, requiring the designer to have a more informed view of the socio-political context in which their design will exist (Frascara, 1997; Papanek, 1971).

With each of these sources of complexity, theory is a critical tool for the designer. Theory helps designers understand this complexity and more importantly explain how it will impact their design problems and solutions. Epistemological theories are required to help a designer when to use qualitative or quantitative *research* methods. Helping a client determine long-term communication and marketing strategies requires theories about how they will impact product sales. Choosing a medium in which to deliver a message requires theories of communications and semiotics to understand how it may be affected and interpreted. Lastly, all design solutions affect the socio-political and environmental context they are placed within, requiring the designer to have a world-view or ethos based on theories about politics and the environment. In each of these examples, the designer's understanding of the theories being applied have a direct impact on the design solution. For simple design projects, one does not generally have to be explicit about how their theories impact their design solution. For complex projects, a designer will be expected (most likely by their client) to explain why a certain world-view or method is used. In each of these cases, the choice of a theory or method rests on an understanding of how design relates to these theories and methods, which in turn requires a definition of design. This change in the industry

and vital role of clarifying design is reflected well by one company in particular: IDEO.

IDEO is the largest product design firm in the United States with a staff of over three hundred, mostly, mechanical engineers and industrial designers (Hargadon & Sutton, 1997; Taylor, 2005). Originally based out of Palo Alto, California, they now have offices across the world. Their client list is long and includes large multinational companies such as Microsoft, 3M, GE, Chevron and Ford. According to their website, they "envision new companies and brands and design the products, services, spaces, and interactive experiences that bring them to life" (IDEO, 2011). In 2008, IDEO's CEO Tim Brown wrote an article in the *Harvard Business Review* outlining his notion of design thinking and how businesses ought to embrace this notion in "all phases" of the innovation process. He uses his company as the prototype that other companies should follow. As with authors mentioned above, he begins this argument with a definition of design: "it is a discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity" (p. 86). Brown uses this definition to contextualize his views on design methods and interdisciplinarity. He demonstrates this connection using an example IDEO project, which he states "perfectly illustrates both the broader nature of innovation "products" and the value of a holistic design approach" (p. 86). A similar connection is made to emphasize his view that design must start early in the product innovation stages: "the application of design thinking in the earliest stages of innovation is what led to this complete solution" (p. 90). In addition, based on a survey of IDEO's website,

it is clear that Brown's vision is an integral piece for how they market themselves to potential clients. Their prominent "About" page explicitly outlines IDEO's concept of design thinking and explains how this relates to their "deeply human process," "mix of analytical tools and generative techniques" and "methods" (IDEO, 2011).

If one believes that the above example only applies to world-renowned product design firms, I can provide my own early professional experience. Fresh out of undergraduate school in design, I began working within a web and software group of a large government department. The group consisted of four programmers and a project manager. We mostly developed websites and web-based applications for clients within the government. I was originally hired to work on multimedia CD-ROMs and create the odd graphic for web applications on which they had already starting working. I was valued for that work and over time was given larger projects and asked to visualize full web sites, not just individual buttons. When I first started, the group I worked with had a very narrow view of what design meant. Many had the impression that my job was to make things look pretty and that my chief skill set was artistic in nature, a view that is common in the industry (Taylor, 2005). From this first project on, this limited view of a design was problematic because I felt our websites and web applications could be significantly improved by using my full skill set: usability and user-centred approach to web and software development. For the websites and web applications where I had little involvement in the early requirements definition and prototyping stages, the final product often lacked a strong user-centred approach. While the applications would work, the functions were not easy to complete because of a lack of attention to work-flow and usability. These socio-psychological

aspects of software development were not a focus for the programmers, which is a reflection of their technical backgrounds. When I identified these gaps to the group and noted that I could play an important role in developing these aspects in future projects, there was a strong skepticism. It took almost four years for me to demonstrate and clarify what more a designer could bring to a software development and project (and why my training prepared me for it). The major reason I was able to get to this position with the group was through a clear argument for why a designer ought to take on a greater role than they had in mind, including a plan for how this new role could integrate with their existing roles.

This example demonstrates two issues for the design practitioner: the difficulty in changing the popular view that designers just make things look pretty; and the need for each designer to be able to articulate their value to project team members. With both of these issues the practising designer can benefit from a clear concept of design that explains why a designer is more than an applied artist, and how designers relate to and support other disciplines.

As a final example of where definition matters for practitioners, one can turn to the many definitions that professional organizations have developed to help establish a mandate for their members. Most major professional design organizations use definition in this central manner (Association of Canadian Industrial Designers, 2006; Society of Graphic Designers of Canada, 2006; International Council of Graphic Design Associations, 2007). In the case of the Society of Graphic Designers of Canada (GDC), their definition took more than two years to develop by two members: Walter Jungkind and Yves Roussell (2006). Prior to the description of the definition, they provide the following points in response to

the question "Why define graphic design?":

- "Graphic design is hard to define in simple terms. It is complex, and has undergone radical changes over time. The many names given to similar activities in the past are confusing when still used today, even to designers themselves."
- "The fact that neither clients nor design practitioners use common terminology is preventing a full understanding of graphic design. This inhibits communicating its benefits to clients, the public, and to government. In addition, it makes explaining graphic design requirements to students more difficult."
- "Clearer terminology and an agreed definition of graphic design would benefit all involved."
- "The Society of Graphic Designers is the appropriate forum to undertake this task." (Jungkind & Roussell, 2006)

The first point highlights the ambiguity of the term — a problem identified in Chapters 1 and 2. The second point demonstrates part of the problem identified in my own personal example. The third speaks to the overall benefit, established in this section. The fourth point speaks to the social nature or politics of definition. Because the GDC represents a group of professionals and has a formal decision making structure, it provides a space for the definition to be discussed, agreed upon and perpetuated. This group definition-making process is explored further in the practical component of the framework.

Summary

As discussed, exploring the process of definition is moot if one does not see a practical need to define design. The examples above provide cases for why the process of defining design is essential and foundational for design researchers, educators and practitioners. While the process can be directed toward achieving greater consensus among the whole community of designers, a more modest approach is an important first step for smaller communities such as school faculty or journal editors. For design practitioners, the value is not as direct for individual designers, but if one sees design education as a critical step in the development of the design profession then the teacher's concept of design has an important and foundational role for the careers of their students. Certainly for design organizations the need is clearly demonstrated.

It is important to note, that while the authors listed above mostly come from the applied arts context, these same benefits are echoed outside this discipline. In a recent paper, management information systems researchers Paul Ralph and Yair Wand propose a definition of design. For researchers, educators and practitioners, they provide the following benefits for having an explicit definition. For researchers,

- "in any theoretical or empirical work in which design is a construct, a clear definition will help ensure construct validity," and
- "a clear understanding of the meaning of design will facilitate developing measures of design-related constructs."

For educators,

- "it seems obvious that any designer's education ought to include providing a clear notion of what design is," and
- a "better understanding what design is will inform what knowledge such education could include."

For practitioners,

- "a clear definition of design can help organize, share and reuse design knowledge. Such sharing can enhance software project success and software development productivity" (Wand & Yair, 2009).

These benefits mirror the ones mentioned in this chapter and demonstrate that the value for developing an explicit definition of design exists within the field of design and related fields.

Moving from the practical benefits for defining design, there remain two arguments against definition: no definition could properly encompass all the various types of design; or, it is impossible for everyone to agree on a single definition. For these issues, we turn to a survey of definition in Chapter 3.

3. A Survey of Definition: Types & Approaches

As mentioned in the introduction, definition becomes complicated when two or more parties disagree or the concept being defined has large implications for the community of users. This chapter will provide a summary of definition highlighting aspects that are salient to designers and defining design. This includes a short history; a summary of the types, approaches and key issues of definition; and, an analysis of which type and approach are relevant to defining design. A significant portion of the summary is borrowed from philosophy, but, since this research is directed toward designers, the summary will be introductory and written in a manner understandable to designers without a background in philosophy.

The tradition of definition started two thousand years ago with Socrates. As a philosopher, Socrates was interested in seeking and building knowledge, as opposed to opinion, about the natural, psychological and political world. He was interested in an important test of knowledge: the determination of the "essential" nature of concepts, such as "justice" and "courage" (Schiappa, 2003, p. 22). In Plato's dialogues, Socrates often pursues these problems by asking: "What is justice?" or "What is courage?" In asking questions in this form, the ancient Greek philosophers were not interested in learning the common usage of such terms, but rather in understanding the "true" nature or essence of what the term denotes. They did not define words solely for communication purposes, but rather for the sake of gaining knowledge and promoting the good (p. 23).

Aristotle continued this tradition with the development of the "standard definitional form involving genus and difference," both of which bear resemblance

with methods used by Socrates and Plato (p. 23). The genus/class would establish what *similarities* the thing being defined had to other things, and the difference would be identified through unique *attributes*. For example: "A chair is a piece of furniture (class) use for sitting (attribute)" (p. 25). This approach has proved so effective that two thousand years later, the creators of the Oxford English Dictionary used it to clarify terms:

> There are rules—a word (to take a noun as an example) must first be defined according to the class of things to which it belongs (mammal, quadruped), and then differentiated from other members of that class (bovine, female). (Winchester, 1998, p. 150)

The longevity and effectiveness of Aristotle's method stems from the fact that he had gained insight into basic functioning of the brain that only recently, through psychology and biology, has been provided a scientific basis. Schiappa (2003) explains the scientific basis for the genus-species method of definition as follows: "[M]uch remains unknown about how the human brain processes sensations ... [f]or present purposes, the most important theory is that our sensory-perceptual activity forms experiences through a process of abstraction and categorization" (p. 13). He then links this process to the process of evolution by quoting child psychologist Melissa Bowerman: "[t]he grouping of discriminably different stimuli into categories on the basis of shared features is an adaptive way of dealing with what would otherwise be an overwhelming array of unique experiences" (Bowerman, 1976, 105-6). In child psychology, this discrimination process is known as developing "similarity/difference relationships" or "SDRs" (Schiappa, 2003, p. 17-18).

For Aristotle, this method of definition was particularly important for

knowledge-building because it allowed one to develop principles based on the categorization and listing of essential attributes. For example, one could start the process of defining design by first establishing the genus which it could belong to: "discipline." A by-product of this first step is also clarifying which sense of the word we are defining; in other words, we are trying to define "design as a discipline." Because "discipline" is a broad genus, the next step would be to determine if a further sub-categorization might be useful. For example, we could divide the disciplines into those that *focus* on the study of the world around us and those that apply this knowledge to a problem. Let's call these knowledge disciplines and applied disciplines. Now we have a narrower genus for design: "applied discipline." A final step would be to differentiate design from the many species within applied discipline, so one could say design is a combined applied art and social science. Thus, we differentiate design from engineering which is the application of the physical sciences. While the example definition we ended up with is not important to analyze, what is important is to see how this process has given us useful attributes that could form principles of design. So, if one sees design as part applied art and part applied social science, one could develop the following principles:

1. A design researcher could argue that the epistemological foundations of design ought to balance the subjectivity of aesthetic choices of fine arts with the objectivity of empirical science.
2. A design educator could argue that design education must include a foundation in the fine arts and the social sciences.
3. A design practitioner could argue to clients that the effectiveness of their

design is based upon the satisfaction of both aesthetic (i.e. colour harmony) and social scientific (i.e. market research) criteria.

While this example was quite brief and far from exhaustive, it demonstrates the usefulness of the genus/species (or similarity/difference) method of definition. Today, this method of definition is still important for philosophers and, as mentioned, lexicographers. But, other fields such as law and linguistics also use or study definition, which has led to the creation of various *types* of definition, each geared towards a particular purpose. The following is a survey of the four main types. There are others, but they are either not relevant for the definition of design or are sub-types within each listed below and, therefore, are discussed later:

1. An "*ostensive* definition" is one used to describe a thing that can be pointed to, and is particularly useful for things that are difficult to explain using words such as colours, but not good for explaining abstract or complex phenomena (Govier, 2005, p. 96).
2. A "*lexical* definition" tries to list and describe all common usages of a term (p. 96); These are the definitions you would find in a dictionary. This method often uses the etymology (study of the history of words and how their form and meaning have changed over time) to inform the definition of the word being defined.
3. A "*stipulative* definition" states what a term ought to mean, and may be adopted as a lexical definition if widely used (p. 99). The notion of "ought" is crucial here because it implies stipulative definition is a persuasive act. That is, one must provide reasons to its listeners as to why they should change their usage of the term.

4. An "*operational* definition" is a type of stipulative definition, commonly used in scientific study for defining an "abstract word in terms of concrete experience" (p. 101). For the purposes of this paper, there is little need to distinguish between an operational and stipulative definitions.

In relation to defining design, each type of definition has varying levels of use value. Ostensive definition is the least useful type because, as discussed above, it does not explain abstract terms very well; one cannot develop a foundation for a discipline by just pointing to a set of objects. Theory requires an articulation of definition that can be scrutinized through written or spoken language. That said, through the process of articulating a definition of design, it is highly useful to point to examples that are the product of design. This is especially important when explaining a definition to a design audience that largely learns through visualization.

Lexical definition is valuable but, again, limited. In defining the discipline of design, if one simply referred to a dictionary, one would immediately be faced with this limitation: which of the twelve or so definitions provided in the dictionary does one use to define the discipline? Even if the dictionary provides a definition explicitly for the discipline, we then need to ask whether the definition is appropriate. In order to choose one of the lexical definitions and to determine the appropriateness of the definition chosen, one needs a justification or reasons. In other words, there is an element of persuasion involved through articulation. Persuasion not based on past usage of the word design, but rather on conceptual and pragmatic grounds. Arguing for a definition in this way means we are now using a stipulative definition.

In fact, this is the limitation of Poggenpohl, Chayutsahakij and Jeamsinkul's approach to definition in their paper. A main focus of the paper is the organizational aspect of definition — that is, the problem of gathering thousands of word uses and definitions to be used in a design dictionary and then using this dictionary to help stabilize language used in design discourse (Poggenpohl, Chayutsahakij, Jeamsinkul, 2004, p. 582). Their emphasis on the organizational aspect of creating a dictionary demonstrates a possible misunderstanding regarding the types of definition. While collecting lexical definitions and creating a dictionary can serve a purpose within a community, it will not help one through the process of selecting and evaluating one dominant definition (or set of definitions) that a whole research community ought to use. This selection and evaluation process is primary and is where difficult theoretical debates about appropriateness and efficacy take place. According to Govier, dictionary definitions do not suffice for complex or abstract concepts where "fundamental" issues of "theory and value are involved" (2005, p. 97). Therefore, if ostensive and lexical definitions cannot resolve the definition of design, stipulative definition seems to be the most appropriate type. Before a final conclusion can be drawn, a full exploration of stipulative definition is required.

Exploring stipulative definition

Within stipulative definition, there are two important epistemological debates about approach that have an impact on the method to be used: the essentialism vs. anti-essentialism debate and the real vs. nominal definition debate. In exploring these debates I will also introduce Edward Schiappa's approach which is the basis

for the proposed approach to defining design.

An essentialist approach assumes one can define the essential features of a thing such that these features are universally true with no exceptions. The essential features are also known as the necessary and sufficient conditions. For example, the necessary and sufficient conditions for being a bachelor are being "male" and "unmarried." Being male and unmarried are sufficient because we don't need additional conditions for a person to be considered a bachelor and they are necessary because every bachelor is unmarried and male. Opposed to this essentialist view, are the anti-essentialists of which there are several flavors. The most famous is philosopher Ludwig Wittgenstein's theory of family resemblances, which assumes that words such as "game" and "art" do not have such universally true features but rather a patchwork of related resemblances that may or may not fit to each application (Weitz, 2007, p. 190). In the case of defining design, the essentialism debate is very important, since design falls into the same category of ambiguous terms as game and art. One could argue that the elusive nature of the term and inability of the community to come to a shared definition is proof that a finite set of necessary and sufficient conditions does not exist. On the other hand, if we take a pragmatic approach to defining design, one could argue for the essentialist approach based on its utility. That is, creating a set of conditions for what constitutes design is useful because it allows the community to develop principles for the discipline, differentiate design from other disciplines, etc.

Even if one is not interested in operationalizing a definition, and is interested for simply the sake of gaining a better understanding of the concept, philosopher Noël Carroll (1999) argues that the essentialist approach has

"immense heuristic value: "By 'heuristic value,' we mean that the method alerts us systematically to the richness and complexity of the phenomenon that confronts us" (p. 10). To demonstrate this he provides the following example using the concept of art:

> When a philosopher of art, like Aristotle, proposes that representation is a necessary condition of art, we consider that conjecture by asking whether indeed everything we categorize as art is representational. If we think of color field painting, we will reject this conjecture as too exclusive. (p. 10)

He then goes on to propose another definition that is too inclusive, emphasizing how future attempts can work in a similar manner, continuously providing greater clarification and discovery. While it is outside the scope of this paper to fully explore all of the arguments within these debates, the salient point is to know they exist. Based on these two benefits, I propose designers use the essentialist approach to defining design.

The second key debate within stipulative definition is between those that consider definition to be "real" or "nominal." For Plato, a "real" definition was a search for the Ideal Form, that is, a definition that describes the "true" and "universal" nature of a term (Schiappa, 2003, p. 36). This view depends on "metaphysical absolutism: the belief that things have independent, "objective" structures of essences that are knowable "in themselves" (Schiappa, p. 36; quoting Barnes, p. 79-83, 1982). While this approach may seem appropriate when trying to define physical phenomena like "tree" or "planet" which necessarily involves identification of properties that are *objectively* perceived, the approach quickly becomes complicated when defining social or metaphysical concepts like "justice"

and "good." What are the essential characteristics of "justice" that we can objectively conceive? Even with the definition of "tree," a real definition is problematic because it is unclear how one can determine which characteristics are objectively essential. According to Schiappa, the essence of a thing depends on one's interest/context, therefore, one cannot search for the "absolute" essence of a thing. For example, a lumberjack may define a tree with an emphasis on characteristics that allow him to distinguish trees from things he cannot chop down, while a chemical engineer may define trees according to its molecular makeup. In other words, "[a] thing-as-experienced may have as many essences as we have interests" (Schiappa, 2003, p. 41). Based on this major critique, philosopher Richard Robinson, along with most modern philosophers, objects to the notion of "real" definitions because they are "at best a mistake and at worst a lie" (Schiappa, 2003, p. 48; Robinson, 1950, p. 170). Robinson uses the word lie because a real definition gives the "false impression" that definition is a matter of correcting "knowledge of facts" rather than a process of isolating characteristics that are relevant to a given purpose (Schiappa, 2003, p. 48; Robinson, 1950, p. 170). To resolve this confusion, Robinson and Schiappa argue that all definitions should be viewed as nominal—that is, an account of how a word should be used. For Schiappa, the clearest way of resolving this confusion is to rephrase the definitional question:

> Instead of posing the questions in the time-honored manner of "What is X?" ..., I suggest that we reformulate the matter as "How ought we use the word X?" given our particular reasons for defining X. Specifically, I advocate that we think of one appropriate form of definition as "X counts as Y in

context C." (Schiappa, 2003, p. xi)

Reformulating the question in this way does three very important things. First, the use of "ought" rather than "is" makes it clear that definition is a matter of persuading others to adopt a new usage of a word rather than a search for the essence of a thing. Second, clarifying that we are defining a word within a specific "context" makes clear to those engaged in the discussion that context matters, both in terms of how the definition is formulated, but also in how it is evaluated. Thirdly, notion of "we" emphasizes the very social nature of the process of definition.

Although stipulative definition is persuasive in nature, this does not mean the process must be a one-way argument where the definer proposes a definition of design and the audience simply agrees or disagrees. If we return to the ancient Greeks, a key aspect of their process of definition was coming to a shared understanding of more than just the term being defined. This dialectical process is illustrated through Plato's dialogues where an interlocutor leads a discussion with one or more people. The discussion often revolves around clarifying important moral concepts such as "justice" and "the good" (Schiappa, 2003, 31). The role of the interlocutor is to help the discussants clarify their often tacit and vague notions of the concepts in question. Definitions are proposed and through scrutiny in the form of argument and examples, the interlocutor shows the discussants that their tacit notions require adjustment. This adjustment leads to a new definition which then bears more scrutiny. Much of the discussion involves clarifying not just the one term in question, but a whole constellation of related terms. Discussion usually opens with a great deal of disagreement and confusion, but through the course of

clarifying what each discussant means when using each related term, disagreement often turns to understanding. This back-and-forth, give-and-take process is called dialectic. Poggenpohl, Chayutsahakij and Jeamsinkul (2003) note that the process of dialectic can be difficult in written form:

> Speech is less calculated and more spontaneous with the speaker observing (or listening) whether the response from an audience demonstrates understanding. There is a turn taking that allows repair and clarification. In contrast, writing is discontinuous; misunderstanding may reveal itself only over time and through response. (p. 583-584)

Dialectic is not only significant here for its relationship to Poggenpohl, Chayutsahakij and Jeamsinkul's description of oral speech acts, but more importantly, it points to a possible method that can be used for not only forming a definition but also achieving consensus among a group of users. This method could be used in oral form, but the power of Plato's dialogues shows it can be used effectively in written form as well.

A second point regarding the social nature of definition, actually points us back to lexical definition and the role it plays in conjunction with stipulative definition. One of the traps of stipulative definition is that it cannot simply ignore conventions of language users when making a stipulation. Ignoring convention is called the "Humpty Dumpty theory of definition", which comes from Lewis Carrol's *Through the Looking Glass*, where Humpty-Dumpty "says that he can make words mean whatever he wants them to mean" (Govier, 2005, p. 99). Although it is certainly possible for one to define words however one wants, the value of doing so is very limited, since one will have no way of sharing this knowledge with others.

Govier explains: "If a person defines words arbitrarily with no attention to public conventions, other people will not understand them and the *words will have no use"* (p. 100). She continues by reminding us of a fundamental value of words in language:

> Words in a language are public instruments for communication in that language, and a stipulative definition is useful only if it sets out predictable and comprehensible standards of use that are workable for the purpose at hand. (p. 100)

Seeing words as public instruments is valuable because all the reasons given for defining design in Chapter 2 revolved around a community of language users: designers and those in fields related to design. Since one cannot define design in a bubble, lexical definitions or a record of previous usage must be a type of definition employed (although not central).

While this summary covers the key debates regarding definition, it is by no means exhaustive. The most important point this summary can demonstrate is that definition is full of complexities. Due to the great difference in purpose of and method used between a) type of definition, and b) definitional approach, it is essential that, prior to all formal discussions about definition, discussants state their purpose and approach. If this is not done and discussants jump straight into the process of definition with no knowledge of these dilemmas, it is likely that these dilemmas will cause great confusion and even conflict about the proposed definitions. As Per Galle (2008) suggests, clarifying one's starting position will allow discussants to determine whether their differences lay in more fundamental issues than a simple difference of opinion regarding proposed definitions.

Proposed method to defining design

Based on the summary above, I propose that designers approach definition from a pragmatic perspective, seeing definition as a proposal for new usage that must be negotiated by designers according to the purposes of definition that they collectively determine. This community of designers could be small (a school faculty determining a definition or vision of design for curriculum development) or large, in the case outlined by Love and Poggenpohl et al. (determining a common usage for a community of researchers).

This approach assumes that definition is nominal and, therefore, avoids metaphysical dilemmas about the "true" or "real" nature of design, and instead evaluates proposed definitions based upon practical ends, such as the development of clear connections between other disciplines. Within this approach, several types of definitions should be employed to form and then evaluate the definition. This approach is particularly important for addressing the concern mentioned in Chapter 2: The species/genus type of definition is valuable for differentiating design from other activities and then establishing logical consistency between a constellation of terms required to understand the phenomenon of design. The etymological type helps provide an understanding of how and why the word has changed. In conjunction with etymological, the lexical method is used to avoid the humpty-dumptyism which decreases the chances others will take up the new or modified definition. Finally, the ostensive type can help one illustrate one's definition by pointing to examples.

It is important to note how this proposed approach addresses the second

and third critiques against the value of defining design mentioned in Chapter 2: no definition could properly encompass all the various types of design; it is impossible for everyone to agree on a single definition. When taking a pragmatic and nominalist approach to definition, one doesn't have to choose a definition that satisfies all types of design. Instead, one can choose a definition that satisfies one's practical end. If the practical end requires a definition that satisfies all types of design, then one simply ought to use a broad definition of design. But, if the practical end is something like curriculum development, such a broad definition may prove problematic, in which case the definition may need to revisited. A point which has been identified by Greg Bamford in his paper on the definition of design (1990, para. 25). Additionally, using the essentialist approach to definition forces one to settle on specific conditions for the term to apply. As mentioned above, while this may run counter to how we experience everyday use of the term design, this approach allows us to operationalize the definition for our practical end. For those not interested in operationalizing a definition, but who would like instead to gain a better understanding of the concept for its own sake, the essentialist approach still has immense heuristic value by "systematically" unraveling the concept.

A last point regarding this critique, is that a contradiction often lies with those who claim design is too broad to define. The contradiction is demonstrated by authors who evangelize about the great value design can bring to today's complex problems but, in the same breath, fail to provide a clear notion of what they mean by design. Surely, if one is so convinced that designers can help solve serious and complex problems like sustainability, one should also be able to

identify what unique skill set designers bring to these problems that those in other disciplines do not.

Euler diagrams and other visual definitions

Within the proposed method of definition above, there is one last prescription that is geared specifically to the design audience. This is the use of a Euler diagram or some form of logic diagram to actually define design. Euler diagrams are made up of a group of closed shapes (usually circles) that each represent a "set" or "class." How these shapes overlap and encompass each other indicates set or class relationships. For example, a larger circle representing the class "animal" could encompass another circle representing the class "mammal", and within this circle one could place another circle representing "human." Shapes that overlap indicate that two classes share some attributes, but not all (Shin & Lemon, 2008). This method is recommended for four reasons:

1. It works well with the species-genus method of definition as the animal example above demonstrated.
2. It is easy to learn and in most cases already known from some exposure in grade school.
3. It is well suited for designers who are visual thinkers (at least from the applied arts context).
4. It is well suited for brainstorming exercises involving a group of people since it involves objects (i.e. sticky notes) that can be moved around on a large board and discussed. Tailoring this process of definition for a group of

people is important because this overall framework is meant not just for individuals to clarify design, but for groups that must clarify design for some specific purpose (i.e. faculty needing to develop school curriculum).

Demonstration of proposed method

Considering the complexity of definition described above, it is useful to demonstrate how this proposed method would actually work when comparing two definitions of design. This demonstration will include the following steps:

1. Establish a hypothetical situation and purpose for defining design.
2. Develop a list of criteria to evaluate definitions based on this purpose.
3. Present and explain two proposed definitions (to establish past usage — lexical definition)
4. Present some real-world examples of design using each proposed definition (ostensive definition)
5. Visualize each definition using a Euler diagram and the genus/species method of definition
6. Evaluate the two definitions according to the criteria developed in Step Two.

Establish context and criteria for evaluating definitions

For the purposes of demonstration, let us assume we are part of a design school that is made up of twenty faculty members in industrial and graphic design, and that the school is part of a large university. The school is undergoing a review of

their curriculum and has chosen to start with a definition of design to help establish common ground among faculty members; outline the school's scope and foci; determine connections between disciplines in the university and industry; set general rules for evaluating student work; all toward the aim of adding, removing, or modifying new courses.

As indicated in Chapter 2, this brief summary of why the school is defining design provides a criterion for evaluating proposed definitions. That is, definitions must:

- be agreed upon by faculty members;
- clarify the school's scope and connections to disciplines in the university and industry; to better integrate these aspects, it would also make sense for the proposed concept of design to fit with core concepts in other disciplines/industries;
- clarify general rules for evaluating designs; and,
- clarify which courses should be added, removed or modified.

In addition to these context-specific criteria, some general criteria are implied by the proposed method of definition. That is, employing the genus/species, lexical and ostensive types of definition recommend that definitions must:

- be free of contradictions;
- provide necessary and sufficient conditions for the definition to apply;
- differentiate design from other disciplines;
- conform (to some extent) to previous common usage;
- help identify prototypical examples.

This list of criteria is very similar to Love's in his paper that was referenced earlier, but this list has two important advantages: first, it distinguishes which criteria are specific to the purpose at hand and which would be relevant in any design context; second, it draws direct connections between an approach to definition and the criteria.

Proposed definitions

In this section, two definitions will be summarized: the first from the contemporary design researcher and design theorist Richard Buchanan, and the second from Bauhaus founder Walter Gropius. For the sake of contrast, the first definition is distinctly broader in scope than the second. Buchanan's broad definition is similar to many contemporary definitions, including those of Tim Brown, Nigel Cross, Ken Friedman and Bruce Mau (Brown, 2008; Cross, 2006; Friedman, 2000; Mau, 2007).

Walter Gropius was an architect turned administrator when he started the Bauhaus in 1919. Unfortunately, during the Bauhaus, Gropius never used the word design to describe the activity within his school. In fact, design was never used to describe a discipline until the early twentieth century, so we must turn to his later writings for his insight into this concept (Gantz, 2010).

From early writings and slogans, Gropius believed design was the marriage of art and technology. In his book, *Scope of Total Architecture* (1956), is a compilation of several speeches and articles between 1924 and 1954, with all, except one, written after 1930. In a 1947 speech he provides an explicit definition of design: "The term 'design' broadly embraces the whole orbit of man-made, visible

surroundings, from simple everyday goods to the complex pattern of a whole town" (p. 35). Gropius states several times in his book that design and architecture must be the "modern architectonic art" or "coordinating mind," that keeps an eye on the larger aim while integrating the various specialists required to plan and build (p. 24). It is important to note that Gropius thinks of the designer as an artist or artist planner and not the more general planner as a designer is typically conceived today. He also lists two key attributes — visualization and aesthetics — which the designer brings to the planning process: "the contribution of the creative designer whose art can realise more fully the visual aspects and the human appeal of planning is essential" (p. 163). This view of design is supported by the early Bauhaus slogan: "Art and technology: a new unity"

Gropius also makes a distinction between engineering and design: "Cooperation on practical building sites, practical experiments with new building materials, studies in draughtsmanship and engineering in addition to design led to the Master Certificate of the Bauhaus" (p. 32).

This distinction is made again a page later: "Whereas the technical and scientific subjects can be learned by progressive course of lectures, the training in design must, to be successful, be conducted as freely as possible, at the personal discretion of the artist" (p. 33). These statements indicate that Gropius thought that design did not include the scientific, but was instead a separate, artistic component, of product making. This marks another key distinction with contemporary definitions of design which often include engineering under the umbrella of design.

For an example of such a contemporary definition we turn to Richard

Buchanan. In his article "Design Research and the New Learning," Buchanan develops an explicit definition of design followed by an explanation of how this concept of design may impact post-secondary education. The paper was published in Design Issues in 2001 and was based on his presentation to the London Design Council. His definition is as follows: "Design is the human power of conceiving, planning, and making products that serve human beings in the accomplishment of their individual and collective purposes" (2001, p. 9). Buchanan elaborates on some key concepts within this definition. "Power" is similar to the notion of creativity and the "product" can be both material and immaterial. These products can manifest as one or a combination of "orders" of design: symbolic and visual communications, material objects, activities and organized services, complex systems or environments for living, working, playing and learning (Buchanan, 1992). What is significant about the inclusion of immaterial products is that Buchanan's conception of design becomes the umbrella for all applied disciplines, including the ones not normally considered sub-fields of design: genetics, pharmacy, law and politics. As Buchanan is not a design practitioner, such an abstract view of design may been seen as a product of his philosophic background. But, as mentioned above, many practitioners promote a similar immaterial definition of design, so it would be wrong to conclude Buchanan's lack of design practice puts him out of touch with practitioners. Another important aspect of Buchanan's definition is that he does not give priority to the traditional role designers had played: the marrying of form and function, or art and technology. This is important because it means his definition makes no distinction between engineering and design. The inclusion of immaterial products and the de-emphasis

of aesthetics and meaning-making are what differentiate Buchanan's definition with Gropius'.

Euler diagram: Comparing the two definitions

The Euler diagram in Appendix A illustrates these key differences (material vs. immaterial; aesthetic focus vs. no aesthetic focus), by relating design to other disciplines. This diagram demonstrates the massive scope to which Buchanan is attributing to the discipline of design. The breadth of this definition is the most common critique of the definition (Bamford, 1990). In the context of curriculum development it is difficult to see what introductory courses could be created to prepare students for such a wide array of problems. Additionally, this definition of design creates a host of difficult questions about how design education might integrate with other well-established disciplines such as genetics, pharmacy, law and social policy development. Psychologist, design writer and consultant, Don Norman, recently raised serious questions about the type of problems designers are being asked to face and the naïve approach some designers are taking to solve these problems. In particular, he is concerned designers are treading on domains, such as the behavioral sciences, that already have a large body of research (Norman, Nov. 2010). The benefit of this definition is that it fits well with the broad notion of design, which is, a plan. Within engineering and other applied sciences, design is often defined as a "specification" for the creation of an "object". As with Buchanan's definition, this object need not be physical (Ralph & Yand, 2009, p. 108). Gropius' definition is less problematic because it retains a differentiating

factor between design and the applied sciences (both disciplines that make/create things), with design blending both art and technology, while engineering is strictly a science. Although not mentioned above, Gropius also hints at another strong connection between design and the social sciences, in particular "psychology" (Gropius, p. 39). This fits well with how contemporary design thinking has established strong linkages with the social sciences, as is done in the popular books: *Design of Everyday Things* (Norman, 1990) and *Universal Principles of Design* (Lidwell, Holden & Butler, 2003). A limitation of Gropius' definition is that it is not as explicit and does not have the same in-depth elaboration as Buchanan's. Without an explicit theory of design, it is therefore difficult to clearly understand how specific connections can be made with other disciplines and concepts. From this perspective, the Euler diagram of his definition is a much rougher approximation, than Buchanan's.

This summary and example demonstrate the value in understanding and evaluating definitions of design. In particular, an essentialist perspective allows us to examine definitions in a methodical manner, using written and diagrammatic descriptions. The diagram is valuable because it clearly shows possible relationships with other concepts. These relationships help us further understand each definition clarifying the similarities and differences between design and other disciplines. Using the pragmatic approach allows us to develop a specific criterion for evaluating the proposed definitions. In this specific example, this approach helps identify weaknesses of the second definition in relation to the goal.

4. Workshop: From Concept to Practice

As mentioned in the introduction, Chapters 2 and 3 make up the conceptual component of the overall framework. Chapter 2 develops arguments for why designers should be interested in the process of defining design and Chapter 3 proposes a method based on survey of types and issues of definition. While this conceptual component could stand alone as useful research, it is important to demonstrate how this research could be used for day-to-day problems. Additionally, testing the framework empirically will provide added validity to conceptual arguments made in Chapter 2 and 3. To do this, a workshop was developed to provide participants an opportunity to define design. Testing the conceptual arguments could have been done in other formats, such as an online survey or learning object, but a workshop was chosen because it allowed the facilitator and participants to have a rich dialogue. In the context of this research, a rich dialogue means a rapid exchange allowing the facilitator and participants to clarify and gain a shared understanding. Online dialogue, via a discussion board or blogging tools, has the advantage of allowing participants to join the conversation when it suits them, which, in turn, creates the potential for more people to participate. However, these tools do not allow for the same immediate questioning, clarification and negotiation that face-to-face conversation allows.

The primary target participant group for this workshop is designers, and those related to design fields, who have some practical need for defining design such as a group of teachers in a post-secondary design institution, a company needing to define roles and responsibilities, or a government board in charge of a

design grant. The secondary target participant group is design students and design practitioners who wish to gain a better understanding of design for their own personal development in school and practice. For this research study, the workshop was conducted with three separate groups of participants, each attempting to represent a different group that would have a direct interest in defining design. Assuming that the vast majority of potential participants would have little-to-no knowledge of definition from a philosophic perspective, the workshop includes a summary of Chapters 2 and 3. This is then followed by the definition exercise. This chapter will provide a detailed description of the workshop structure and testing methods and procedures.

Methods and procedures

Each workshop had the same general structure: 10 minutes to introduce the workshop facilitator (the author of this study) and participants, including their name and background (if not already known by facilitator and participants); a 70–90 minute presentation summarizing the content of Chapters 2 and 3, including a description of the workshop process (see Appendix F for thumbnails of full presentation); followed by a 30–60 minute exercise and discussion which gave the participants a chance to go through the process of defining design for themselves. The three workshops were distinguished by three different participant groups: first year students enrolled in the Master of Design program at the University of Alberta; faculty and part-time instructors at Grant MacEwan University; and, senior faculty from various disciplines across the University of Alberta which have some

meaningful connection with design. Emphasis was placed on qualitative data collection and analysis rather than quantitative, therefore each workshop was small — between 3–4 participants. Workshops of this size allowed for a rich dialogue as each participant was given ample time to ask and respond to the facilitator and other participant questions.

To accommodate the different audience groups in each workshop, small changes were made to the exercise. Participants of Workshop 2 were allowed to work as a group, simulating a faculty meeting, whereas the participants in Workshops 1 and 3 worked alone. Additionally, since participants in Workshop 3 were not designers from the applied arts, definitions were written instead of drawn in a Euler diagram.

Within the context of the workshop, the effectiveness of the framework was measured by: analyzing direct written feedback from participants evaluated the workshops and framework; analyzing the discussion among participants; and analyzing participant's verbal, written and visual responses. The first means of measuring effectiveness was more reliable since there was less subjectivity required when analyzing the data. The second and third means required a much more subjective interpretation of whether or not the participants were able to understand and synthesize the presentation content and that the discussion was constructive and positive. In detail, the three types of data collected from the workshops were:

1. **Written survey filled out by each participant before and after the workshops (Appendix D).** The part of the survey filled out before the workshop included questions about the participant. The part of the survey

filled out after the workshop asked the participants to evaluate the presentation, workshop and framework. The survey was completed anonymously, to increase the chances that the participant felt comfortable evaluating the presenter and the framework.

2. **Verbal dialogue from throughout the workshop.** This data was collected by video-taping the workshop and then transcribing salient points for analysis.
3. **Euler diagrams or other visuals used to define design.** Participants were asked to create these during the participatory portion of the workshop. Due to time constraints (which is explained in Chapter 5), the Euler diagram was replaced with a written definition for Workshop 3.

It is important to note that this data is not being collected to test the participants feedback or their definitions. Instead, the dialogue and diagrams are being analyzed with an emphasis on supporting the participant's evaluation of the workshop and framework overall. This emphasis avoids the complicated and subjective task of trying to assess the framework by evaluating participant's dialogue and definitions.

Participant profiles

A total of 11 participants took part in the three workshops. While this is a small number, the value of conducting these test workshop is not in the quantity of responses, but rather the quality and depth of conversation among participants and the facilitator. The following is a more detailed breakdown of the workshop

participants.

Workshop 1 was composed of four first-year students enrolled in the Master of Design program at the University of Alberta. With over 35,000 students the University of Alberta is the largest university in the province of Alberta and a major research university in Canada. Two of the students were specializing in Visual Communication Design, while the other two were specializing in Industrial Design. Two were male and two were female. One participant had ten years working experience, while the other three had two or less. One participant had three years of teaching experience, another had less than a year and the remaining two had none. The main reason for defining design in this workshop was for the students to contextualize their own masters research. While all four participants had discussed the concept of design in their first year graduate classes on a weekly basis, they had not done so in the formal and explicit manner that they did within the workshop.

Workshop 2 had three participants, three visual communication design instructors at Grant MacEwan University. Two of the instructors were full-time faculty with the Design Studies program, the third was a part-time instructor within the same department. The instructors had 10, 7 and 4 years teaching experience respectively and all had at least 7 years of design practice experience. The main reason for defining design in this workshop was to see how a similar workshop or meeting among all program instructors could be conducted. Participants mentioned that their program was going through significant change and were intending to hold curriculum planning meetings in the future, for which, the process of defining design could be a starting point. Only 18 months prior to

this workshop, Grant MacEwan was given university status by the provincial government. Due to this recent designation, the Design Studies program is still currently a diploma program with a greater emphasis on industry placement than the University of Alberta. The recent designation has resulted in a period of transition for all faculties within the university including the Design Studies program.

Workshop 3 had four participants, each a senior faculty member from four different disciplines at the University of Alberta. The four disciplines were chosen for their strong connection to design: business and marketing, computing science, mechanical engineering and psychology. The focus for this workshop was less pragmatic than the previous two, since the four attending had no immediate reason to define design. Instead, the focus was exploratory: a chance for the researcher and participants to learn how similarly (or not) disciplines used the term design.

The second and third workshop groups represent two of the three groups identified in Chapter 2: educators and researchers. The first workshop comprised future researchers or practitioners. While several of the participants had experience as practicing designers, none of the workshops focused specifically on this audience segment. That being said, the intent of these workshops was not to cover every audience group, but to demonstrate how some audience groups could benefit from the workshop.

Recruitment of participants

The request for individual participation in the workshops was made via email and was strictly voluntary. In several cases, the researcher already had previous contact with the participant, either through email conversations, face-to-face meetings at conferences or interaction while teaching at the University of Alberta. Choosing participants with whom there was personal contact before, increased the opportunity for their participation and also a greater understanding of the goals of the research. A sample email invitation can be found in Appendix B.

5. Discussion of Results

In general, feedback from participants from all three workshops was positive. They all indicated that they would recommend their colleagues to attend the same workshop (Appendix G, Question C4). Additionally, on a scale of one to five (with five being the highest) the average rating for the following questions was 4.6: "how informative did they find the whole workshop?" and "how beneficial do you think this sort of workshop (with more time) would be for educational faculty when discussing long-term curriculum plans?" (Appendix G, Question C2 & C3). While this data is from a small sample size, it does demonstrate promise for wider application of the framework and workshop.

The following is a summary and evaluation of the presentation (and the arguments contained within it); discussion; and definition exercise. Each summary concludes with a brief recommendation for future workshops. There are two notes regarding naming conventions and data collection. First, the convention for labelling participants is as follows: Workshop 1 includes participants A-D, Workshop 2 includes participants E-G, and Workshop 3 includes participants H-K. Second, due to time constraints during the workshops, the facilitator decided to allow the participants to skip certain questions in Part B of the survey. This part included two questions that required a written response which took longer to complete. To compensate for this missing data, verbal feedback of the presentation is the focus instead.

Evaluation of presentation and its arguments

In response to the survey question "how informative did you find the presentation" on a scale of one to five (with five being the highest), the average score from Workshops 1 and 2 was 4.4. Part B of the survey was skipped in Workshop 3, explaining, the absence of data regarding this question. Based on participant's high rating of the overall workshop, it is reasonable to infer that Workshop 3 had a similar positive view of the presentation.

Written feedback regarding the presentation was given only in Workshop 2. In response to Question C3, which asked participants to identify the part of the presentation they found the most informative, the following feedback was given:

- **Participant E:** "Essentialism vs anti-essentialism. Great quotes from many sources that clarify and support definition."
- **Participant F:** "The flow and sequence was very good. Helped me understand the issues reasonably well."
- **Participant G:** "Types of definitions: ostensive/lexical/stipulative, etc. -> good framework to understand scope/expectations."

In response to Question C2, which asked participants to identify the part of the presentation they found the most confusing, the following feedback was given:

- **Participant E:** "All was very clear and straight forward"
- **Participant F:** "Not so much confusing, but it was a lot to take in, hold on to. Good that there was a kind of summary at the end."
- **Participant G:** "Nothing confusing. Terms were explained quite well, with a good summary towards the end."

Participant F's comment regarding the amount of content was echoed by verbal comments by participants in Workshop 1:

- **Participant B:** "I found the first part where you're talking and presenting extremely useful and interesting. I'm wondering, and I know this is years of research, I'm wondering if there's a way maybe making it more a little more intelligible to someone who is not familiar with the key concepts. Only because it's being presented in a short span, we don't have a week or two to think about it."
- **Participant D:** "If you did this workshop again ... then I can imagine emailing out something to read before hand, and it's maybe 2–3 pages that lays out the fundamentals, so that when you get in and actually start the workshop, you can further summarize that and paraphrase it such that you can get right into the "meat and potatoes" of having them interact with those concepts and try to formulate something, and then take a break, talk about it, and move on to another exercise."
- **Participant B:** "I think there might be a way to break the information down to even more basic, digestible components. It was very useful, but at times it felt like a bit much, but it was great."

While it is apparent from these comments that the participants felt the presentation content was clear, valuable and informative, the comments highlight that the amount and complexity of the information could be decreased for future presentations. Simplifying the content is possible, but risks weakening the arguments that are so critical to the opening of the discussion which provides

much needed context to the exercise. Their suggestions of providing some reading materials prior to the workshop may be a good way of reducing the information overload that some experienced, and allowing the workshop to focus more on discussion and the exercise.

Evaluation of discussion

The main opportunities for participants to discuss amongst themselves, and with the facilitator, was just after the first of two sections of the presentation, after the completed presentation, and after the exercise. For all three workshops, the discussion was engaging and the facilitator had no difficulty in getting the participants to talk. While this is not surprising for the first two workshops, where the participants knew each other, it was a little unexpected for Workshop 3, where only two participants knew each other. For each workshop there was one participant that had less to say than the others, but otherwise no single person ever dominated discussion. This comfort level among participants demonstrated that the format and number of participants was conducive to open and thoughtful discussion. For future workshops, it would be valuable to see if there is a threshold for the number of participants, at which comfort level decreases.

Beyond comfort level, the quality of discussion was best in Workshops 2 and 3. For Workshop 2, the quality and quantity of discussion was highest during the exercise, likely because they decided to create their diagram as a group. Doing this required a constant back-and-forth negotiation between the participants, and for some questions with the facilitator as well. Additionally, because they were

design educators they likely had more immediate reasons for wanting to define design and, therefore, greater motivation to ask questions. The following excerpt is a sample of the rich conversation during the presentation:

> **Facilitator:** "Buchanan and Bruce Mau are arguing for this...what do you think Participant A?"
>
> **Participant E:** "I agree with you, that this definition is way too broad."
>
> **Participant G:** "Instead of shedding light, it's making it muddier. It takes you very far away, and we are here..."
>
> **Participant E:** "It seems a designer would have a very superficial understanding of everything."
>
> **Participant G:** "In this case, we are all designers. We are all designers. Everybody is a designer. We have talked about, every time we have mapped out the design process, the process we follow could be followed by any discipline."
>
> **Participant E:** "Well that's another issue, some people refer to that as design thinking, which is different than designing. That's you're applying design thinking to problems, the way you approach a problem."
>
> **Participant G:** "OK, but in my view, it defines the discipline. The design thinking is what separates a designer from a person with a computer."
>
> **Participant E:** "As I am looking at this, we are all VCDs, if you did something at the university with ID, and other disciplines, the result might be quite a bit different than what we come up with."

Appendix I provides another longer excerpt that also demonstrates the constructive conversation between the facilitator and participants. In this excerpt,

a participant asked for a clarification of what the facilitator meant by the term "theory." The facilitator provided an example which in turn led to the participant synthesizing this explanation in their own words. This back-and-forth conversation allowed the facilitator to hear what aspects of the presentation needed clarification and allowed the participant to learn about the facilitator's position and perhaps gain an insight into how theory could relate to practice.

Workshop 3 had discussion throughout the presentation because the participants had many more questions. This was for two reasons: firstly, there were more presentation points they didn't agree with; and, secondly, they had little knowledge of design from an applied-arts perspective. Regarding the first reason, the main disagreement was about whether or not a definition of design was even needed. This was a major point of debate, as noted in the opening chapters, and even though there was no resolution we continued on to the exercise. Not surprisingly, the discussion about needing to define design came up again after the exercise, a point that was predicted in Chapter 2.

Regarding the second reason, the lack of knowledge about design in the applied-arts created unexpected debates. A good example of how a simple question created a protracted debate is about the term "applied fine arts." One participant asked what this term meant, which prompted other participants to ask the same question. While it is critical that such a term be clarified for the participants, it could have been answered in a much quicker manner if the facilitator had come prepared to answer it. Without a succinct answer, the facilitator spent about ten minutes trying to negotiate the term with the participants, which required the exercise to be cut short. While the facilitator

cannot anticipate all such questions prior to the workshop, in retrospect, explaining the history of the discipline for which design is named, seems an obvious topic that should be covered for workshops which include designers from outside the applied arts context. This need was specifically identified by one survey response: "Need to better define fine/applied art." To address this need, it is recommended that a short history of design from the applied arts perspective be given for workshops that include participants outside of the applied arts field. If this were to be done, the overall workshop would have to be lengthened by at least fifteen minutes.

While at first these unexpected questions and resulting debates were frustrating for the facilitator, upon reflection, they became valuable lessons. They demonstrated the extra work and care that is required to share research between disciplines, and most importantly showed how much of a gap still exists between disciplines that are supposedly closely related. One participant made a point in their survey to highlight the value of these debates: "our lively discussion covered all criticisms that came to mind."

Evaluation of exercise

As mentioned above, the length of the exercise portion of the workshop was cut short because of the extended presentation. The exact length for each exercise and following discussion was: 30, 34 and 45 minutes respectively. Even though the exercises and related discussions were shortened, they were long enough for participants to create definitions (albeit, in some cases, not completed to their

satisfaction). The definitions can be found in Appendix H.

Due to time constraints and because the participants were not from visual backgrounds, definitions developed in Workshop 3 were written out rather than put in a diagram format. This shift in format still allowed for valuable discussion among participants and demonstrated a variety of viewpoints. The diagram developed by participants in Workshop 2 was perhaps the most detailed and nuanced, but participant B's diagram is almost equally detailed. This demonstrates that the exercise works effectively as both a group and individual exercise. A more complete discussion about conducting a group versus individual exercise is below. Although a deeper analysis of each diagram could be made, as mentioned in Chapter 4, the value of conducting the workshop exercise is not in evaluating the participant's diagrams but rather in analyzing their evaluation of the exercise. To this end, the following is an analysis of the participant's evaluation and suggestions for improvement.

On a scale of one to five (with five being the highest) the participants rated the exercise/discussion portion of the workshop an average of 4.6. This positive feedback was reflected in the verbal feedback given after the exercise:

- **Workshop 1, Participant D:** "Definitely having something to feed back into and having a time restriction to be forced to make a decision is good. I think that's really good.
- **Workshop 1, Participant B:** "I personally could have used more time. I thought the workshop was fantastic. I loved how we ended up with this end product that's hinting at something but not necessarily a final

product."

The participants in Workshop 2 were particularly positive of the experience of working together on the definition. Here is an excerpt of the conversation with two of the participants:

> **Participant C:** "We are so collaborative, and it's such a conversational thing, we need to even convince each other, and make each other think, it's not that we don't understand this, it's just that when you have to put it into words, it's helpful to discuss it, so I like the group idea."
>
> **Participant A:** "It's an important exercise, and fundamentally people know it's an important exercise."
>
> **Participant C:** "Now we are into it, and you've convinced us."

Since the primary audience group for this workshop was educators, it is important to highlight this positive feedback. It indicates that the workshop format and group exercise may be a valuable tool for other design educators.

Even for those who don't have a concrete purpose for defining design, including a group component into the exercise may also prove valuable. Following the exercise in workshop 1, which was done individually, one participant said this:

> "I think it'd be kind of cool if we compared what people did on their own versus what they started to do in pairs/groups, because I think definitions get harder to concretely state."

Although individual definitions were compared in workshop 1 and 3, the discussion was limited due to time constraints. Even within the time constraints the debate between participants was not as lively as in Workshop 2. Since each member naturally wished to incorporate an aspect of their definition into the group

definition, specific points had to be discussed, defended and negotiated. This process helped bring into focus the strength and weaknesses of participant arguments.

Concluding remarks about the workshop

After considering all of the data collected from the workshop, including survey responses, participant discussion, exercise responses and verbal feedback from participants, it is reasonable to conclude that the workshop format is valuable for the two intended target participant groups. Although the sample size is small, the feedback from the 11 participants was positive. Importantly, this feedback was common for both the presentation and exercise, demonstrating that both components (conceptual and practical) were equally valued by the participants.

In particular, the primary participant target group — those with a practical need for defining design — were the most enthusiastic of the workshop. Workshop 2 acted as a prototype for a larger meeting of design educators. The participants either came into the workshop in agreement with the value of defining design or had been fully convinced of the value by the end of the workshop. This made the definitional exercise more focused and resulted in a detailed and nuanced diagram considering the short time frame the group was asked to create it in.

The secondary audience — those defining design for personal understanding or development — represented by workshop 1 and 3 would also benefit from this workshop. Responses to survey question C2, C3 and C4, showed little difference between these workshops and workshop 2 (Appendix G). Even the

one participant from Workshop 3, who did not see the value of defining design, still gave the workshop a high rating. But, as mentioned above, this participant's view did create some unforeseen complications. Without all members agreeing to the value of defining design, the process of defining design had the potential to revert back to this original debate. While this debate is valuable to have, it must be cut short at some point as the workshop is only 2.5 hours long. If this debate prevents the participants from spending an appropriate amount of time on the exercise it detracts from their experience of trying to discuss and evaluate proposed definitions — which is a central objective of the workshop. For future workshops, it would be unfair to prevent participants with this view to continue with the exercise, so a remedy would be to provide better examples of when and why definition is beneficial. In certain contexts, such a dissenting opinion may be less problematic. For example, with design educators, the department or program chair might make the definitional process a requirement, in which case, the process of definition could proceed with less difficulty. But, even in this case, it is recommended that the "Why define design" portion of the presentation be retained, so faculty members who are sceptical of the process, may see that it has value.

6. Conclusion and Future Considerations

At the end of the last chapter, it was concluded that the workshop exercise and presentation would be of value to the intended audience groups. But, what does this say about the framework overall, and specifically, what does it demonstrate about the strength and validity of the arguments contained within the conceptual component of the framework? It is useful to re-iterate the main objective of the framework: to illuminate the process of definition with the aim of making discussions about the definition of design constructive and positive (rather than circular and frustrating). Based on the positive feedback from all three workshops and rich discussion during the workshops it is reasonable to conclude the framework has achieved this objective. To what extent is more difficult to determine with such a small sample size and subjective outcome, but nonetheless these initial workshops demonstrate that the process of defining can lead to greater understanding about design and rather than frustration for participants.

In Chapter 4, it was stated that the effectiveness of the workshops does not necessarily confirm or deny the veracity of the conceptual component of the framework. The most we can infer from an effective workshop is that arguments contained within the conceptual component have some resonance with the intended audience of the framework. While this is far from a proof of the arguments, it at the very least demonstrates that the rhetoric or mode of appeal is appropriate for the intended audience. Some participants did note that the quantity of information was difficult to digest within the given time frame and that some of the concepts about definitional types/approaches could be broken

down into more basic components. These comments point to the need for some modification of the delivery of the content but, for the most part, this requires logistical changes (such as providing reading material before hand) rather than a different mode of appeal.

With regard to evaluating the conceptual component framework, we can draw some conclusions about the need for summarizing the content in Chapter 2 (Why define design?). Two out of the 11 participants (one participant from Workshop 1 and one participant from Workshop 3) raised questions about the value of defining design. As comments from Workshop 2 demonstrate, for some, this question seems straightforward, but for others the value is not clear or worse, defining design is seen as a constraint for designers. This demonstrates the clear need for beginning the presentation (and conceptual component) with clear and concrete examples of how defining design is of value to designers. Even after the presentation covered these examples, there was still one participant who was not convinced a definition of design was useful: "Not sure that I think the definition is really valuable. Within any context" (Workshop 3, Participant K). While there will always be dissenting opinions, this may point to the need for more examples to be provided in this section for future presentations.

Interestingly, the effectiveness of the workshop itself is a demonstration of the practical value of defining design. Participants in Workshop 2 required little convincing that there is a need to clarify design for a group of design educators. In fact, these participants were eager to use some of the arguments and methods within meetings at their own school. While the facilitator never asked what they would have done prior to participating in this workshop, it would be interesting in

future workshops to ask educators how they approach curriculum development in relation to defining design. Specifically, it would be interesting to know if schools ever engage in this debate, or if it gets ignored due to the controversy that it might create or due to a lack of time. In fact, it is not unreasonable to consider the potential benefit of this framework for any discussion in which a core concept or term needs to be made explicit or is in dispute. For example, if a group of art educators were trying to define art for a post-secondary school, all of the same issues or concerns would most likely arise. Some would argue that there is no value in defining "art"; others may argue that "art" cannot be defined in an essentialist manner. To address these concerns, the same framework would need to be followed: why define art? What type and approach to definition should be used?

Workshop 3 also demonstrated, to some extent, the value of defining design. The majority of the participants showed a lack of awareness that the word "design" has denoted a discipline within the applied arts for more than 60 years. This shows a major gap of understanding regarding the term design between the applied arts (graphic design, industrial design, architecture, fashion design) and other disciplines in business and the sciences (engineering, computer science, management information systems, etc.). It seems as though other disciplines are unaware of how their broad use of the term "design" may affect the identity of graphic design, industrial design, fashion design, etc. While there is a great deal of literature about other discipline's lack of awareness about these applied arts disciplines, this workshop showed that even after 2.5 hours of discussion specifically about the definition of design, a shared understanding was only just beginning to develop. In one's day-to-day exposure to design, this understanding

would most likely take years to develop, if at all. This points to the need for greater dialogue among designers in the applied arts and other disciplines.

Aside from this these two examples of an argument in Chapter 2 being verified by the workshop, the strength and veracity of the remaining arguments developed in Chapters 2 and 3 must be judged on their own merit. While the workshop findings put into practice the concepts developed in Chapter 2 and 3, the success of the workshop and general acceptance by participants only demonstrates that there is clear promise for the arguments. The critiques made by participants will be used to add to and strengthen the chapters for future publications and workshops.

Returning to the original question, what does the effectiveness of the workshop say about the overall framework and or the relationship between the two? Since we can judge that the means of presenting the conceptual component was effective and the practical component (workshop and exercise) was effective, overall, this demonstrates that the framework has a great deal of promise and value for the intended audience of researchers, educators and practitioners. The next step is to see how this workshop could be useful in an actual curriculum development situation.

Next steps: More discussion about the meaning of design

Aside from the obvious next step of conducting the workshop outside of this masters research and with a larger sample size, this research and workshop point to a series of next steps. The first has to do with general awareness among

designers and other disciplines, and the second has to do with academic rigour.

General awareness about the "insidious inconsistency" that can arise from the ambiguity of the term design is still low. Outside of a handful of design researchers who are far removed from everyday design teaching and practice, the issue gets little attention. Design evangelists like Tim Brown and Bruce Mau have been very effective at raising the profile of design in government and industry. But, unfortunately, their notion of design is so broad and fuzzy it is unclear how their definition differentiates design from a great deal of other well-established disciplines. Don Norman (2010), the author of the influential book that connects behavioural psychology with design, recently wrote the only piece I have seen in any industry publication that critiques this design evangelism calling it a "useful myth." He calls the notion "useful" because it allows for designers to be known for more than "making things look pretty." He suggests designers use the rhetoric, but not live by it (Norman, Jun. 2010). In another article, written only a couple months later he extends his critique to design education. He argues that as the field broadens, designers are engaging in behavioural sciences which they are not trained to work within. While he welcomes the embracing of scientific methods by designers, he cautions that designers are woefully ill-equipped to do behavioural science correctly. He argues that a new educational model must be developed that will teach designers the correct methods (Norman, Nov. 2010).

This critique of the broadening of design without a critical view of its implications is repeated by design theorist and philosopher Greg Bamford: "One consequence of paying scant attention to the meaning, or rather meanings, of 'design' is that design as a cognitive activity is then easily conflated with design as

a social or institutional practice, or profession" (1990, para. 35). Considering the wide popularity of Brown and Mau, it seems this conflation is even more prevalent today with serious educational ramifications.

To address this problem, more voices are needed to add to Norman's skepticism. This includes a greater awareness of the ambiguity of the term design and greater awareness of the value of interrogating the proposed definitions or theories. Richard Buchanan (2001) echoes this sentiment:

> Definitions serve strategic and tactical purposes in inquiry. They do not settle matters once and for all, as many people seem to believe they should. Instead, they allow an investigator or a group of individuals to clarify the direction of their work and move ahead. (p. 8)

With regard to academic rigour, more proposals beyond the common broad definitions of design need to be developed. As discussed earlier, these definitions are more than just a single sentence description, but full accounts of a constellation of terms. Per Galle (2002) calls this a "conceptual and verbal tool kit useful for thinking about how to improve the practice of [design]" (p. 217). Our field does have several attempts at such a theory of design but, again, there are only a handful (Brown, Buchanan, Cross, Krippendorf, Lawson, Papanek, Ralph & Yair, Stotlrman, Simon). A more frequent and thorough critique of competing definitions also needs to take place within the design community, with a focus toward one's immediate task (i.e. unifying the whole field, setting school curriculum, establishing an association of practitioners). As with the workshops conducted in this research, it is important that the value of defining design is not placed on settling on a single definition but rather on the process and constructive

discussion and shared understanding that takes place during this process.

For my own part, the next steps are three-fold: raise awareness about the value of defining design and engaging in the process, conduct workshops and foster dialogue about definitions of design. These three steps are centred around a website (http://www.defining-design.net) that provides an overview of the framework, links to resources on the issue of defining design, and information for organizations that would like to have similar workshops conducted within their organization (see Appendix L for a screenshot of the homepage). The framework is presented in a manner that makes it accessible to a wide audience, not just academics. The website has commenting tools that allows users to respond to and discuss the framework and user-submitted definitions.

In addition to the website, I will also share this research and promote the workshop within the design community and related fields through academic and industry conferences. A first piece of this knowledge-sharing was through a panel display at the University of Alberta which provides an overview of this research and link to the website noted above (see Appendix J and K for an image and detail of the display). In addition to raising awareness, I will also approach educational and professional institutions to see if they could benefit from similar workshops to be conducted within their programs. Workshops would be tailored toward the specific needs within the organization, which may require longer workshops or certain parts of the workshop to be emphasized or de-emphasized. Each workshop would allow for further refinement of the presentation and exercise. Moreover, each workshop and subsequent organizational changes (or lack thereof) would provide a chance to see the real benefits and difficulties of implementing the framework.

The knowledge gained from this longer-term feedback would be of great value to researchers and could be summarized on the website. Furthermore, the website will act as a hub for these talks and workshops, allowing for audience members and participants to learn more or join in the dialogue online. Over time, the goal is for the website to become a catalyst for greater dialogue about the value of clarifying design terminology and evaluating competing definitions.

This research and subsequent website, talks and workshops, will be my contribution to the establishment of stronger philosophic foundations for the relatively young discipline of design. Just like my early experience trying to understand design in my first year as an undergraduate, perhaps future design students will come across this research or website and gain some clarity and insight into what kind of work their degree in design might prepare them for.

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Appendices

Appendix A

Definition comparison using a Euler diagram

	Material / Physical		Immaterial / Metaphysical		
Speculative Aim: Truth or understanding	Physical Sciences physics, chemistry, biology	Social Sciences psychology, sociology, linguistics	Fine Arts music, visual art, film/theatre, poetry, etc.	Ethics political science, political philosophy	Logic symbolic logic, mathematics
Applied Aim: Solve practical problem	Engineering Health Sciences struct., materials, chem.genetics, medicine		Design architecture, industrial, graphic design, etc	Politics and Law policies, law, services, etc.	Computing Sciences information, computation
Executing Aim: Match plan	Manufacturing, Construction and Delivery building trades, factory and assembly-line, technical trades, printing, etc.			Administration gov't ministry, institution	

	Material / Physical		Immaterial / Metaphysical		
Speculative Aim: Truth or understanding	Physical Sciences physics, chemistry, biology	Social Sciences psychology, sociology, linguistics	Fine Arts music, visual art, film/theatre, poetry, etc.	Ethics political science, political philosophy	Logic symbolic logic, mathematics
Design Aim: Solve practical problem	Engineering Health Sciences struct., materials, chem.genetics, medicine		Applied Arts architecture, industrial, graphic design, etc.	Politics and Law policies, law, services, etc.	Computing Sciences information, computation
Executing Aim: Match plan	Manufacturing, Construction and Delivery building trades, factory and assembly-line, technical trades, printing, etc.			Administration gov't ministry, institution	

Appendix B

Sample Letter of Initial Contact
Email invitation to participant

Dear Participant X,

I am inviting you to participate in a study I am conducting as part of my Masters of Design Thesis project research about the definition of design. This will require about 2 hours of your time. It will involve attending a workshop, which include a 20-40 presentation that outlines a framework that I have developed for exploring definitions of design. The remaining 60-90 minutes of the workshop will involve an exercise allowing you to the framework into practice, exploring your own definitions of design and discussing them with other participants? There will be about more 2-6 participants attending the workshop. You will be given the participant list prior to the workshop, to ensure you are comfortable with who else may attend.

I have attached the Informed Consent Form that explains the research in more detail. You don't need to sign it at this point, it is simply there to help you make a decision as to whether or not you would like to participate.

About the framework

Whether you agree or disagree with the value of engaging in the debate about definition, it nonetheless is an issue that has come up repeatedly over the last twenty years in design research journals and even more frequently on PhD-Design List. Definitions, and specifically the definition of 'design', is a highly sensitive and complicated issue, which is why in situations where a definition leads to a new policy or curriculum, the debate can end in acrimony or ambivalence.

Personally, I believe definitions are important for design researchers, educators and even practitioners, and this framework provides some reasons for this position. More importantly, this framework also provides a survey of definition, acting as a sort of knowledge transfer from the philosophy community to the design community. This knowledge transfer is important as I believe a significant reason debates about definition of design are unproductive is because most designers only have a surface understanding of methods, types and issues surrounding definition.

Sparking dialogue

At the end of the day, I am most interested in sparking a thoughtful and constructive dialogue. To this end, the workshop will involve plenty of time for you to discuss your thoughts on design with myself and other participants. Additionally, I will be publishing some participant feedback on a Wordpress site at the conclusion of the study and inviting other designers to join the discussion. If successful, this framework and these workshops could be used with other groups of design researchers and educators to facilitate important discussions about what design means and how this will impact research and education.

Your participation is strictly voluntary. Regardless of your decision, please let me know if you would like to participate by replying to this email by October 18th.

Thank you for your time.

Sincerely,

Robert Andruchow

MDes Candidate

Department of Art and Design

University of Alberta

780-934-3279

Appendix C

Informed Consent Form

A Workshop on Defining Design

Context

This study is part of Masters of Design Thesis project in Visual Communication Design, which will result in a design project, written support document and public presentation. The objective is to learn how a proposed framework for thinking about definition may lead to constructive discussions about the definition of design. This will be done by gathering feedback on a 20-40 minute presentation outlining the framework and then a 60-90 minute exercise where you will get a chance to complete an exercise based on the framework. This presentation is intended to raise awareness of the value of clarifying central concepts; and, provide some basic methods and tools to help designers (and reseachers whose research related to design) formulate and evaluate definitions of their own. The feedback and discussion from this workshop will be used to gauge the effectiveness of the framework, identify aspects that can be improved upon, and may be used as a catalyst to foster dialogue beyond the conclusion of the study.

This project has received ethics clearance for the involvement of human participants by Arts Science Law Research Ethics Board of the University of Alberta.

Specific Study

Participants will be asked to attend a 2.5 hour workshop, which will include a short survey, a 20-40 minute presentation, and then a 60-90 minute exercise. The workshop will involve considerable discussion about the framework and about each participant's definition of design. At three different stages of the workshop participants will be asked to answer a couple short survey questions about themselves and their evaluation of the workshop.

The workshop will be conducted at University of Alberta. To record the discussion from the workshop for later analysis, a video camera will be placed in the corner of the room for the duration of the workshop. Videos will be kept strictly confidential and will not published in any form. Discussion from the videos will be transcribed and then coded to keep the participant's identity anonymous.

As stated above, the first goal of this research is to raise awareness about issues of definition to the wider design community. While this is intended to be done formally through publishing academic papers and conference presentations, it will also be done informally through the Internet. In particular, design students and practitioners who may not read academic journals or attend academic conferences on a frequent basis, may find this topic to be more accessible if presented on the Internet. Additionally, blogging tools such as Wordpress, provide web site visitors an opportunity to engage with the participant responses by posting their own response – creating the potential for a wider dialogue.

To create this opportunity, participant responses to the content of the presentation (not their evaluation of the presentation) may be posted anonymously on a Wordpress site moderated by the researcher. It is important to note, any responses posted via Wordpress will not be part of this particular study – they are simply intended as way of expanding the dialogue outside academia. Also, to demonstrate effectiveness of the framework and workshop, participant feedback which evaluates them may be quoted verbatim in the final research report.

All data that is collected will be coded, analyzed, documented and discussed in the final thesis project report without identifying participants. Additionally, participants will be given the opportunity to review a draft report so they can review how their responses have been quoted. At this point, the participant may withdraw, revise or clarify their responses. According to University of Alberta GFC Policy 96.2, data must be kept for 5 years after the conclusion of the research. During these 5 years, all data, including video recordings, will be encrypted on a DVD and stored in a locked filing cabinet in a locked office in the Art & Design department. After the 5 years the DVD will be destroyed.

Please note, this study is strictly voluntary and your performance is not being tested in any way. Your assistance is greatly appreciated.

I _____ agree to participate in a study for the above research project conducted by Robert Andruchow, Department of Art and Design, University of Alberta.

I understand that (please check):

___ There is minimal risk in exploring my thoughts on the definition of design.

___ I am free to withdraw from the study/workshop at any time without prejudice (and have my data removed).

___ All information obtained about the participant in the connection with this study will remain anonymous and confidential.

___ You may document, without identification, my written and verbal feedback in your research report.

___ You may video record this workshop. All video recordings will be kept confidential and in a secure location for 5 years, until it is destroyed.

Participant name _____ Date _____

Signature _____

For further information, contact study researcher Robert Andruchow 780-934-3279, robert@viscom.ca or study supervisor Aidan Rowe, Assistant Professor, Dept of Art and Design; 780-492-8591; aidan.rowe@ualberta.ca

Appendix D

Survey Questions

A Workshop on Defining Design

December 13, 2010

Robert Andruchow
Master of Design Candidate
University of Alberta
robert@viscom.ca

A. Prior to start of presentation

Mark an "X" beside the answer that fits best.

1. How many years have you been teaching / researching?

   ____ years

2. On a scale of 1-5, please rate your level of interest in design.

   ____ 1 No interest

   ____ 2

   ____ 3 Some interest

   ____ 4

   ____ 5 High interest

3. On a scale of 1-5, please rate your level of knowledge about design.

   ____ 1 No formal knowledge

   ____ 2

   ____ 3 Some formal knowledge

   ____ 4

   ____ 5 Extensive formal knowledge

4. How frequently do your collegues have discussions about the definition of design?

   ____ Never

   ____ Once every 2-5 years

   ____ Once every year

   ____ Once a month or more

5. Should your colleagues have this discussion in a formal manner on a more or less frequent basis?

   ____ Less frequent

   ____ More frequent

   ____ Current frequency is good

B. After presentation

Please answer the following questions about the presentation.

Responses to these questions may be quoted anonymously in the final report. You will be given the opportunity to review a draft excerpt from the report so you can see how your responses have been quoted. At this point, the you may withdraw, revise or clarify your responses.

1. On a scale of 1-5, how informative did you find the presentation?

   ____ 1 Not at all

   ____ 2

   ____ 3 Moderately

   ____ 4

   ____ 5 Very

2. Which part of the presentation did you find the most confusing? (point form is ok)

3. Which part of the presentation did you find the most informative? (point form is ok)

C. After exercise and discussion

Responses to these questions may be quoted anonymously in the final report.

1. On a scale of 1-5, how informative did you find the exercise / discussion?

   ____ 1 Not at all

   ____ 2

   ____ 3 Moderately

   ____ 4

   ____ 5 Very

2. On a scale of 1-5, how informative did you find the whole workshop?

   ____ 1 Not at all

   ____ 2

   ____ 3 Moderately

   ____ 4

   ____ 5 Very

3. On a scale of 1-5, how beneficial do you think this sort of workshop (with more time) would be for educational faculty when discussing long-term curriculum plans?

   ____ 1 Not at all

   ____ 2

   ____ 3 Moderately

   ____ 4

   ____ 5 Very

4. Would you recommend other members of your staff/cohort to take part in a similar workshop?

   ____ Yes

   ____ No

5. What criticisms do you have of the proposed framework that you have not mentioned during the workshop?

Appendix E

Script

A Workshop on Defining Design

November 22, 2010

Robert Andruchow
Master of Design Candidate
University of Alberta
robert@viscom.ca

Informed Consent Form (10 minutes)

Survey (5 minutes)

Presentation (35 min)

Questions about presentation (10 min)

1. Any questions about this presentation?

Analysis and Synthesis of Presentation Content (15 min)

2. This presentation provides arguments for the value of establishing foundations for the discipline / field of design. Do you agree or disagree with these arguments?
3. Following from this, I presented arguments for the value of defining design. Do you agree or disagree with these arguments? Please explain.
4. In what context do you think a definition would be useful? Could you see identifying this context help you determine a criteria for what would make a good definition?

Survey (5 minutes)

Break? (10 min)

Euler diagram exercise (20 min)

Using a Euler diagram, map out your definition of design. You should work alone for at least 15 minutes. You can work together for remaining 5 minutes.

Questions about diagrams (30 min)

1. Explain your diagram to everyone.
   Give an opportunity for other participants to evaluate the definition.

2A Are there differences between your diagram and that of of another participant?

2B Do you think these are critical differences? In what context would this be critical?

2C Would you want to incorporate any of the differences into your own diagram?

2D What can we learn from these differences?

3. Assuming you were part of a research or educational committee and had to come to an agreement on a single definition, do you think you could? Could you combine each others diagrams into one? How would you resolve major differences?

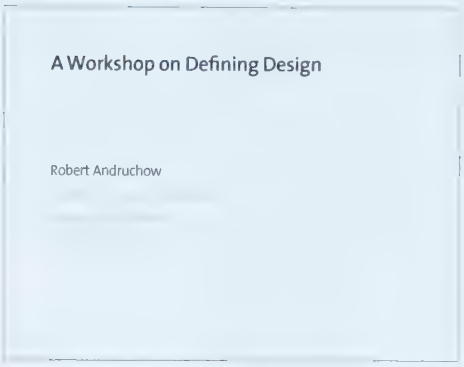
Concluding questions (10 min)

1. Do you think this workshop would be beneficial for other groups?
   (educational or professional)
2. Any other thoughts?

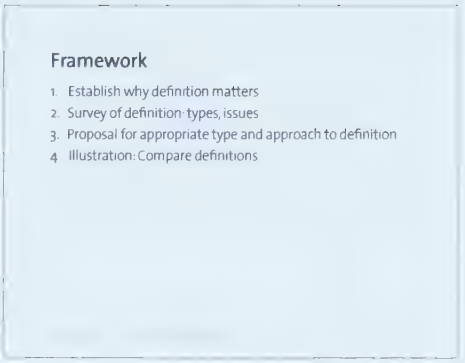
Survey (5 minutes)

Appendix F

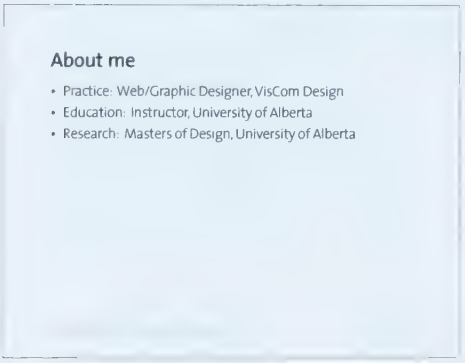
Workshop presentation slides



1



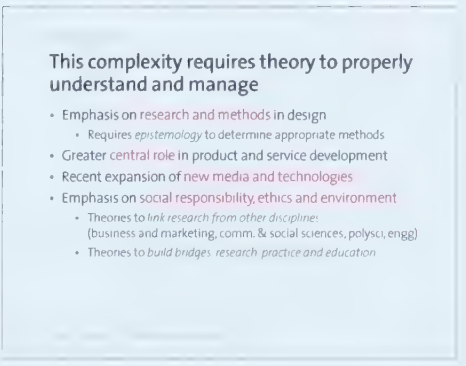
2



3

4

5



6

This complexity requires theory to properly understand and manage

- Emphasis on research and methods in design
  - Requires *epistemology* to determine appropriate methods
- Greater central role in product and service development
- Recent expansion of new media and technologies
- Emphasis on social responsibility, ethics and environment
  - Theories to *link research from other disciplines* (business and marketing, comm. & social sciences, polysci, engg)
  - Theories to *build bridges. research, practice and education*

7

Design needs its own body of theory

- "a lack of a specific design discourse with ongoing development, argument, criticism, research findings, etc. hampers development of design as a discipline and prevents design from contributing its knowledge more broadly" (Poggenpohl, Chayutsahakij, Jeamsinkul, 2004)
- While there is agreement that design is a synthetic discipline, Poggenpohl, Chayutsahakij, Jeamsinkul disagree that this means it cannot have its own internal discourse

8

Design theory requires philosophic foundations

- agreement upon "core concepts and terminology" in design
- to clarify "the scope, bounds and foci of fields of research and theory-making about designing and designs",
- greater investigation into epistemological, ontological issues in design; and lastly, better "integration" of design theory and "other bodies of knowledge" (Love, 2002)

9

Design theory requires philosophic foundations

- agreement upon "core concepts and terminology" in design
- to clarify "the scope, bounds and foci of fields of research and theory-making about designing and designs";
- greater investigation into epistemological, ontological issues in design; and lastly, better "integration" of design theory and "other bodies of knowledge" (Love, 2002)

- first objective leads to the second and third objective

10

Why definition of design matters

- Central term
- Highly ambiguous
- "Insidious inconsistency" (Galle, 2008)

11

Ambiguity of "design"

"Design is when designers design a design to produce a design " (Heskett, 2001)

- a professional practice- applied art
- a professional practice: umbrella for all applied disciplines
- a plan or intention ("well designed football play")
- a decorative pattern
- a drawing or sketch (of a plan)

12

Ambiguity of "design"

"Design is when designers design a design to produce a design." (Heskett, 2001)

- a professional practice: applied art
- a professional practice: all applied disciplines
- a plan or intention ("well designed football play")
- a decorative pattern
- a drawing or sketch (of a plan)

13

Why should designers understand definition?

- "There has been an unfortunate misunderstanding about the nature and use of definitions, and this has caused our discussions to become unproductive and wasteful of time and energy." (Buchanan, 2001)

14

Why not leave it to philosophers?

- "definitions put into practice a special sort of social knowledge—a shared understanding among people about themselves, the objects of their world, and how they ought to use language" (Schiappa, 2003, *Defining Reality*).
- As designers, we maintain this shared knowledge through communities of research and practice, making us experts on how to define our world
- If designers must play a central role in definition, we must clarify the process itself to make it more productive for designers

15

Questions?

16

Survey of definition

- Tradition dating back to Socrates: "What is justice?"
- Often very mundane
- Types and Issues
- Proposed type

17

Types of definition

- Ostensive: showing or pointing to an example
- Lexical: report on past usage – dictionary
- Stipulative/Operational/Theoretical/Precising proposal for future use

18

Types of definition

- Ostensive: showing or pointing to an example
  useful but not central because theory requires articulation
- Lexical: report on past usage – dictionary
- Stipulative/Operational/Theoretical/Precising:
  proposal for future use

19

Types of definition

- Ostensive: showing or pointing to an example
  useful but not central because theory requires articulation
- Lexical: report on past usage – dictionary
  useful but not central – which definition do you choose?
- Stipulative/Operational/Theoretical/Precising:
  proposal for future use

20

Types of definition

- Ostensive: showing or pointing to an example
  useful but not central because theory requires articulation
- Lexical: report on past usage – dictionary
  useful but not central – which definition do you choose?
- Stipulative/Operational/Theoretical/Precising:
  proposal for future use
  central – is an argument for how a community ought to use the term and within a given context

21

Key issues in definition

- essentialism vs anti-essentialism
- real vs nominal

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Essentialism debate

- design is a word that cannot be defined using necessary and sufficient conditions, instead it is a patchwork of 'family resemblances' (Weitz, Wittgenstein)
- probably true of all words, in terms of how they naturally evolve within a community
- essentialist approach allows one to operationalize the definition

23

Genus-species

- similarity-difference
- taxonomy
- allows one to develop principles based on the categorization and listing of essential attributes

chemical	discipline
water	applied discipline
liquid water, ice, steam	applied art, applied science

24

Nominalist vs Real approach

- Real
  - a definition that describes the "true" and "universal" nature of a term
  - independent, "objective" structures of essences that are knowable "in themselves"
- Nominal
  - no objective essence exists for any concept
  - "[a] thing-as-experienced may have as many essences as we have interests" (Schiappa, 2003)
  - how one defines "tree" depends on one's interest

25

Proposed type and approach

- Stipulative/Theoretical/Precising
  - start with the purpose and audience
  - why are you defining the term, and for whom?
  - agree there is value for given purpose
  - criteria will follow from this
- Essentialist
  - operationalize the definition
- Nominalist
  - essential characteristics are highlighted by interest in definition

26

Proposed type and approach

- Stipulative/Theoretical/Precising; Ostensive; Lexical
  - start with the purpose and audience
  - why are you defining the term, and for whom?
  - agree there is value for given purpose
  - criteria will follow from this
- Essentialist
  - operationalize the definition
- Nominalist
  - essential characteristics are highlighted by interest in definition

"There has been an unfortunate misunderstanding about the nature and use of definitions and this has caused our discussions to become unproductive and wasteful of time and energy"
Buchanan (2001)

27

Benefits of this approach

- Highlights need to determine purpose
- Allows for multiple proposals
- Can apply in many contexts (research community or team)
- Avoids metaphysical absolutism
- Avoids 'Humpty-Dumpytism'
- Must consider previous usage of audience/users
- Develop criteria for judging proposals

28

Criteria for an effective definition

- Stipulative Purpose: Unify design theory (Love, 2002)
  - Be an epistemologically well-bounded theoretical construct
  - Have the same role and purpose across all the intended areas of research and theory making knowledge researchers developing theories about designing and designs use
  - Fit with other core concepts to form a complete set of theoretical building blocks with which to construct and develop a larger body of theory/knowledge
  - Align well with the concepts and definitions developed in other disciplines that interface with designing and designs, or whose bodies of knowledge researchers developing theories about designing and designs use

29

Criteria for an effective definition

- Essentialism Requires logical consistency
  - Be distinct and not overlap other core concepts
  - Provide both necessary and sufficient conditions for the definition to apply
  - Not be constructed solely of other concepts at a similar level of abstraction

30

Criteria for an effective definition

Additional criteria

- Ostensive
  - Should allow us to point to examplars / prototypes of design
- Lexical
  - Should be informed by past usage, if we want a community of users to adopt it

31

Will defining design destroy it?

- Either the word has meaning or it doesn't
- If it has no meaning, then there is nothing to destroy
- If it has meaning, then we ought to understand what we mean by it (shared or personal) - we ought to articulate it

32

Hegemony

- Definition is not a call for legislating language
- Definition is a tool for thinking about design
- Definitions should be encouraged to spark debate, indentify "insidious inconsistencies"
- Community of users will judge whether it serves their interest

33

Definition as a tool

"Definitions serve strategic and tactical purposes in inquiry They do not settle matters once and for all, as many people seem to believe they should. Instead, they allow an investigator or a group of individuals to clarify the direction of their work and move ahead"

(Buchanan, 2001)

"Conceptual and verbal tool kit useful for thinking about how to improve the practice of [design]"

(Galle, 2002)

34

Questions?

35

Exercise

36

Comparing definitions

Richard Buchanan (applied arts)
Ralph & Wand (MIS / organizational analysis / engineering)

37

Applied Arts

" Design is the human power of conceiving, planning, and making *products* that serve human beings in the accomplishment of their individual and collective purposes."
(Buchanan, 2001)

38

Applied Arts

" I have suggested that there are four orders of design in the twentieth century"
(Buchanan, 2001)

- symbolic and visual communications
- material objects
- activities and organized services
- complex systems or environments for living, working, playing, and learning

(Buchanan, 1992)

39

MIS / Organizational Analysis / Engineering

" (noun) a specification of an *object*, manifested by an *agent*, intended to accomplish *goals*, in a particular *environment*, using a set of *primitive components*, satisfying a set of *requirements*, subject to *constraints*;"

" The design object is the entity (or class of entities) being designed. Note: this entity is not necessarily a physical object "

(Ralph & Wand, 2009)

40

MIS / Organizational Analysis / Engineering

Six classes of design objects:

- **physical artifacts**, both simple, such as boomerangs (single-component), and composite, such as houses (made of many types of components)
- **processes**, such as business workflows
- **symbolic systems**, such as programming languages
- **symbolic scripts**, such as essays, graphic models, and software
- **laws, rules and policies**, such as a criminal code
- **human activity systems**, such as software design projects, committees and operas
(Ralph & Wand, 2009)

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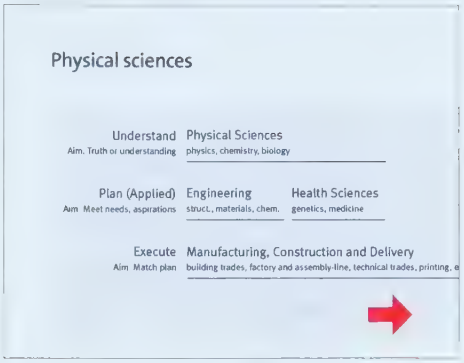
Mapping the disciplines

Understand
Aim: Truth or understanding

Plan (Applied)
Aim: Meet needs, aspirations

Execute
Aim: Match plan

42



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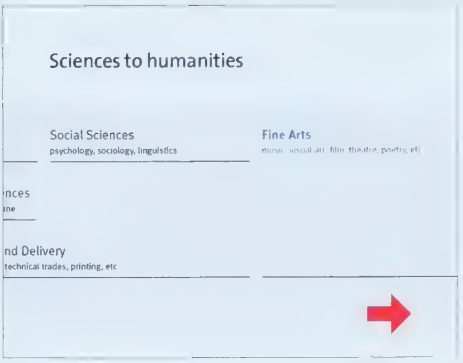

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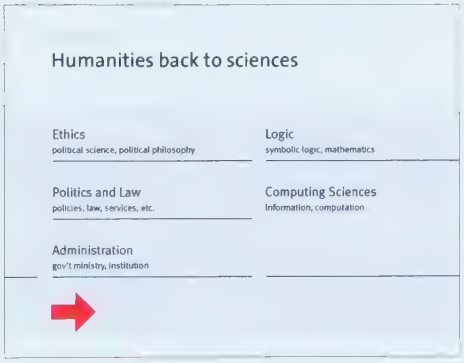

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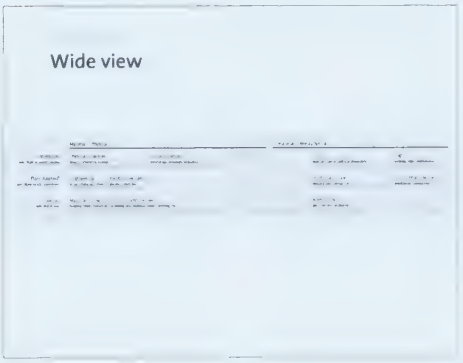

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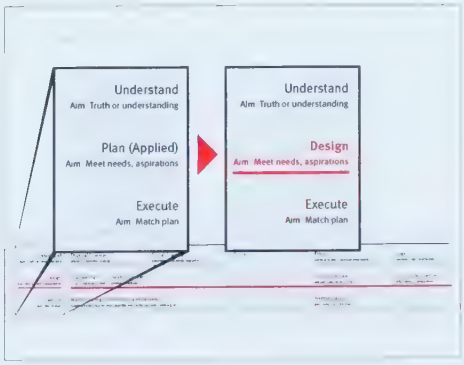

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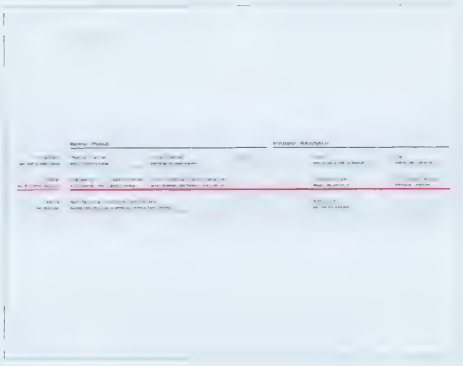

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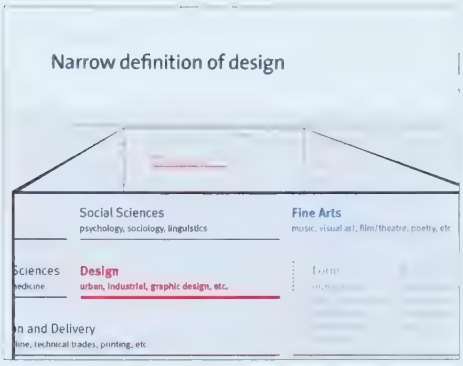
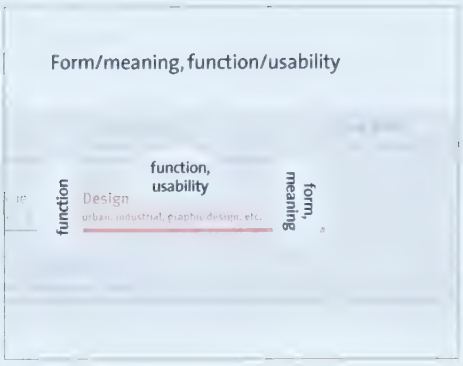
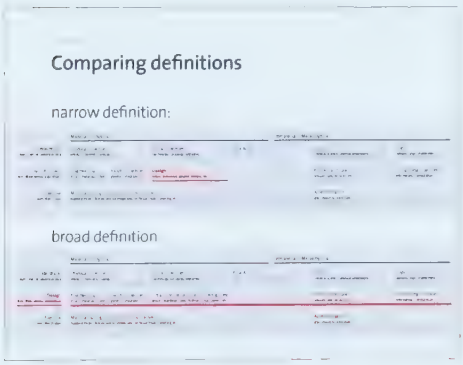

Narrow definition of design
Social Sciences
psychology, sociology, lingulstics
Fine Arts
Design
urban, industrial, graphic design, etc.

49


Form/meaning, function/usability
function
function, usability
Design
form, meaning

50


Comparing definitions
narrow definition:
broad definition

51


Discussion

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Appendix G

Workshop survey results
About the Participants

	Group 1	Group 2	Group 3	Totals
Brief group description	Grad students	Teachers	Teachers	
Discipline	Design	Design	Interdisciplinary	
Institution	U of Alberta	Grant MacEwan	U of Alberta	
No. of participants	4	3	4	11
No. of male participants	2	1	3	6
No. of female participants	2	2	1	5
Avg. yrs working as designer	3.3	10.7	n/a	-
Avg. yrs teaching / researching	0.8	7.0	18.0	8.8

A1. On a scale of 1-5, please rate your level of knowledge about design.

Scale descriptors: 1 No formal knowledge 3 Some formal knowledge 5 Extensive formal knowledge

n/a	n/a	3.0	-

A2. On a scale of 1-5, please rate your level of interest in design.

Scale descriptors: 1 No interest 3 Some interest 5 High interest

n/a	n/a	4.5	-

A3. On a scale of 1-5, please rate your level of interest about philosophy of design.

Scale descriptors: 1 No interest 3 Some interest 5 High interest

3.8	3.3	n/a	-

A4. How frequently do your collegues have discussions about the definition of design?

Never	0	0	1	1
Once every 2-5 years	0	0	1	1
Once every year	0	2	1	3
Once a month or more	4	1	1	6

A5. Should your colleagues have this discussion in a formal manner on a more or less frequent basis?

Less frequent	0	0	1	1
More frequent	2	2	2	6
Current frequency is good	2	1	1	4

Workshop survey results
Evaluation of the workshop

	Group 1	Group 2	Group 3	Totals
Brief group description	Grad students	Teachers	Teachers	
Discipline	Design	Design	Interdisciplinary	
Institution	U of Alberta	Grant MacEwan	U of Alberta	
No. of participants	4	3	4	11

C1. On a scale of 1-5, how informative did you find the exercise / discussion?

Scale descriptors: 1 Not at all 3 Moderately 5 Very

4.3	4.7	4.3	4.6

C2. On a scale of 1-5, how informative did you find the whole workshop?

Scale descriptors: 1 Not at all 3 Moderately 5 Very

4.8	4.7	4.3	4.6

C3. On a scale of 1-5, how beneficial do you think this sort of workshop (with more time) would be for educational faculty when discussing long-term curriculum plans?

Scale descriptors: 1 Not at all 3 Moderately 5 Very

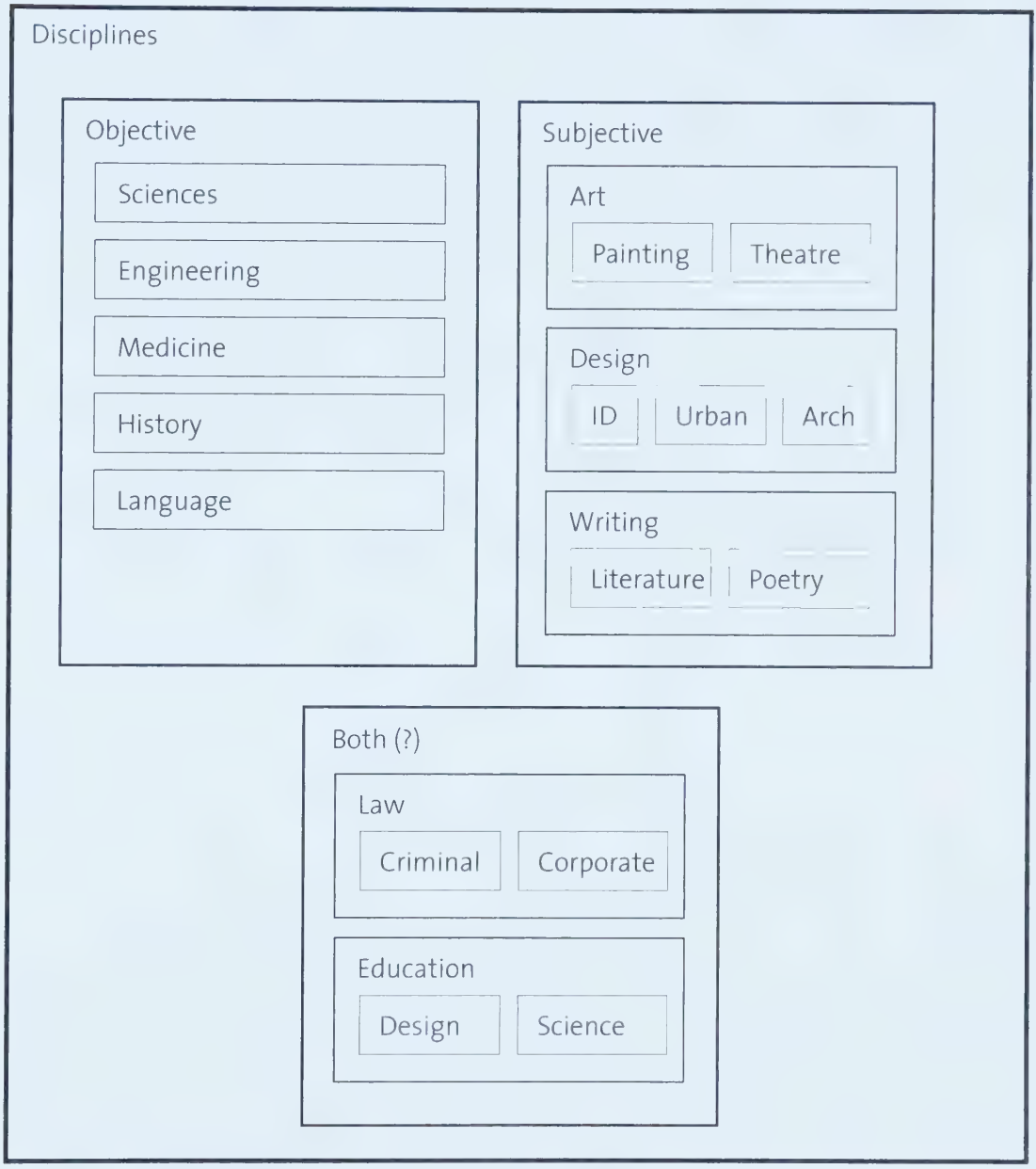
5.0	5.0	4.0	4.6

C4. Would you recommend other members of your staff/cohort to take part in a similar workshop?

Yes	4	3	4	11
No	0	0	0	0

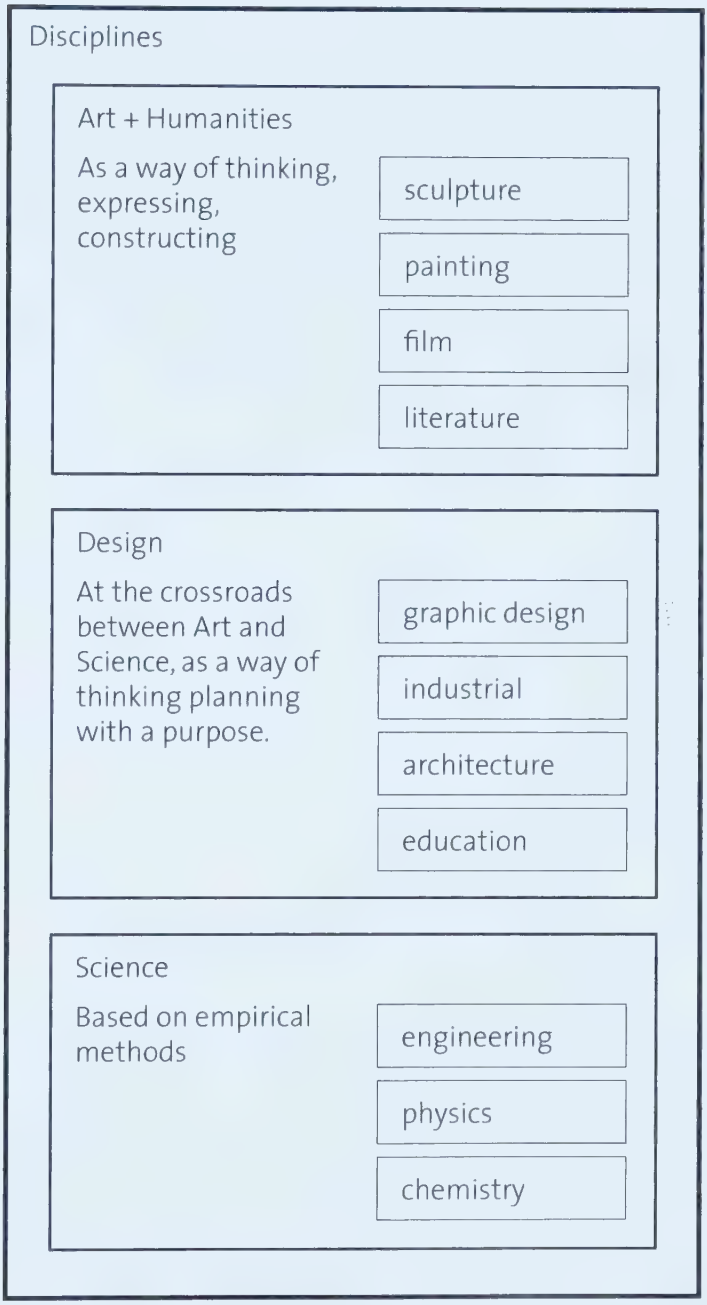
Appendix H

Exercise Response
Workshop 1 - Participant A



Legend ☐ Each box represents a genus or class, that contains further classes or species

Exercise Response
Workshop 1 - Participant B



Mixed territory when put out in real world:

- literature as art - poetry
- film as art (Warhol)
- graphic design as art in public space

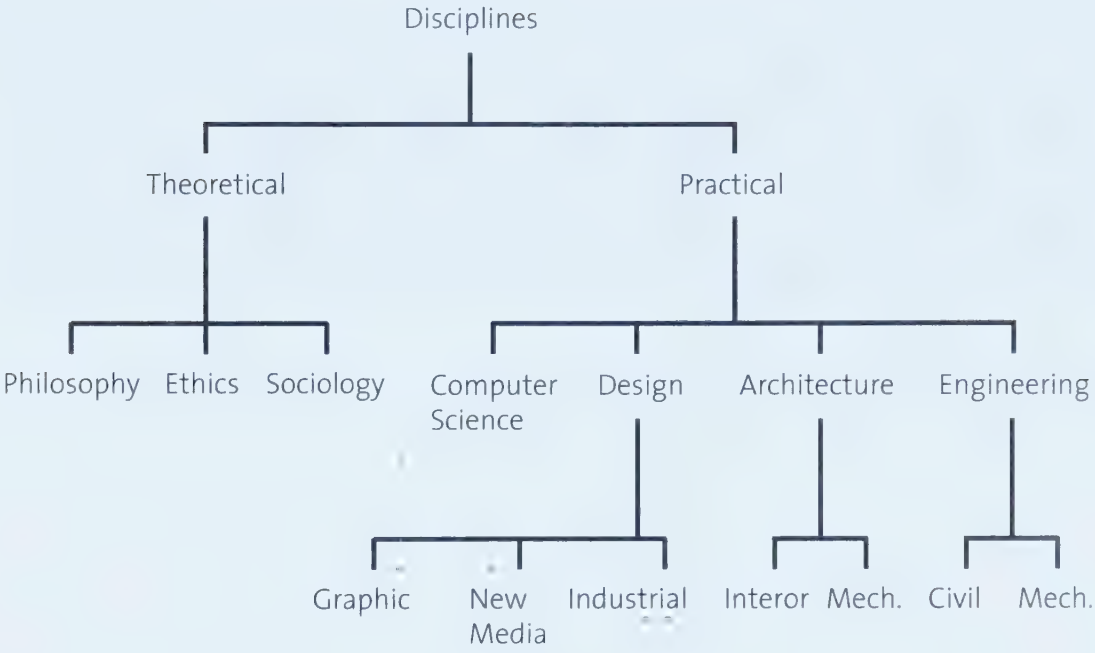
- graphic design for public consumption/viewing in a commercial web project

- design project merging with ethnographic practice
- film as scientific product
- scientific literature
- chemical product design drugs, etc...

Legend ☐ Each box represents a genus or class, that contains further classes or species

Shows interdisciplinary connections

Exercise Response
Workshop 1 - Participant C



Legend

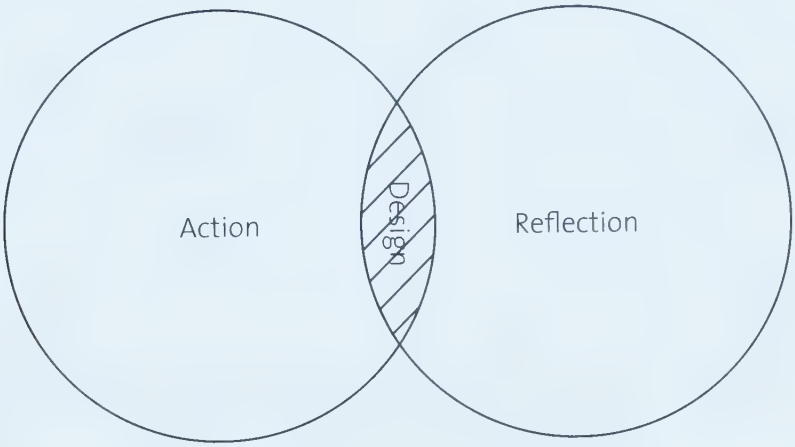
Shows interdisciplinary connections

Exercise Response
Workshop 1 - Participant D

Action

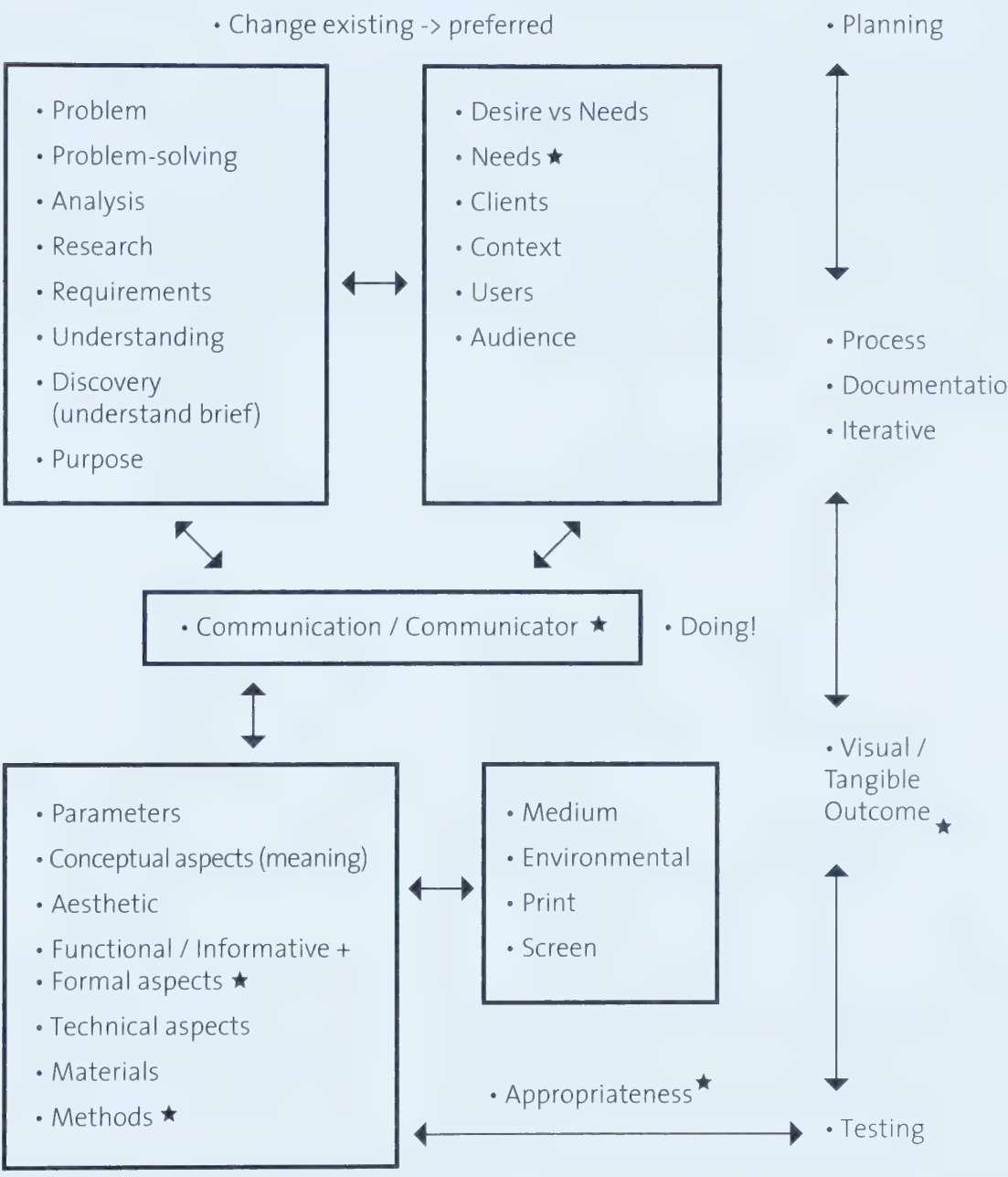
Design

Reflection



Exercise Response

Workshop 2 - Participants E, F & G (Group)



Legend

- Each bullet represents a single sticky note

★ Distinguishes design from other disciplines

Stickies with no specific placement:

- Creativity?
- Innovation?

Exercise Response
Workshop 3

Participant H

Design as a study or curriculum or technology =
Apply objective principles and procedures (algorithmically? heuristically?) to obtain some outcome or product

Research design, curriculum design, technology design =
Product from the application of objective principles and procedures

Design is what a designer does when designing a design
discipline *process* *product*

Participant I

Design = goods, services and processes that have a perception of value

Design = contextual activities with positive outcomes

Participant J

Design (noun) is a fabrication plan. It express the relationship between one level of abstraction (the specification) and the next level (the implementation)

Design (process) is the activity of address the needs of the client, within the resource constraints of the client, while also maintaining core principles/values. The goal is to produce a series of design resulting in an artifact.

Methodology is the study of how we do the design. It lets us talk about designs and how we make them. It provides a shared vocabulary (ontology) across all designers.

Participant K

Design	- of experiments	- for aesthetics	- prototype design
	- of project strategy	- for human interface	- for function
	- of posters	- reports	- for fun
	- of systems	- for communication	- to help
	- of safety	- cost out	- to destroy
	- for manufacture	- quality in	- to please

Common elements: human endevour + thinking/feeling + purpose + curiousity

Appendix I

Excerpt from discussion
Workshop 2

Facilitator: What do you think about the complexity of design necessitates theory?

Participant G: With all the new media and technologies, many people and mainly our students and other younger people are confusing things – design is becoming a lot about the product, and about how you make that product, so I think it's a timely moment to stop and separate the definition of design from the tools that we use to make designs are, so I think technologies for sure are making the picture lot more complex. In every single project we have to stress the planning of the thing. You don't go to the computer, it's just a tool to help you. Design is all before, and I think it's important to separate them.

Participant E: I agree with the things you've said – that theory is required to understand and manage. It comes back to a consensus amongst designers in general about who we are and what we do. There are some definitions of design that we are service industry that services other industries. Then there's another group of designers who want to take it beyond the borders of simply being a service industry and maturing it beyond that to something that adds much more value than a service industry, more than just repackaging meaning, but making meaning in some ways; it's one of the things I've been thinking about.

Are we creating problems for ourselves by trying to shape an industry that maybe is too big, that somehow we as a community of designers need to refocus and shape it to something that's more manageable? I don't know if that's possible, but, I think that stems from definitions.

What do you mean by theory? My understanding of theory, and I have a superficial one, is that theories are often things that need to or can be proven in some way. So if we talk about the theory of evolution, people can dig up bones and can figure out that this animal is related to this one. I don't know how that applies to design, I don't really know how it applies, and I want to know how theory applies to design.

Facilitator: Semiotics is one example of theory of how we interpret visual imagery and symbols in general. It's a theory that helps, among other communications theory, helps students think about how to create designs. It helps them understand how the audience might interpret the imagery, and it informs your decision of how you make the design. That's one concrete example of how semiotics being a theory of how people interpret and decode symbols, and designers can use that theory.

Participant G: ...If design had its own body of theory, we wouldn't be borrowing from semiotics or sociology, we would be creating our own, and I think borrowing from all these other disciplines has made design so rich.

Facilitator: Having our own body of theory doesn't mean we have to shut us off from these other disciplines...I'd hope it'd give us arguments for why we should include semiotics or not. (Gave example of Jorge's article about Graphic design as fine art or social science...)

Participant G: So that's bringing in the focus of all these disciplines, and placing it in one body of theory for design, with special emphasis on semiotics, for example.

Facilitator: And knowing also to what extent do we need to get designers up to speed on semiotics, and how deep. But it's that argument of how much semiotics we need to be giving students, which comes from that body of theory, we are an applied discipline, so it's not critical that students need to know the intricacies of semiotics, but they need to know that it's at least that it's one way of interpreting imagery, and that comes from my strong sense of what design is, and that would go for any field. Engineers, by knowing what they do well, they'd know what's outside of their domain, say if they are dealing with environmental issues that becomes a public policy issue, so they need to the grey zone....etc...

Participant G: I think probably that is the main scope of your project because design is so broad, and I'm thinking when you said pluralism vs. unification. If we unified, we'd be closing, and I think every project and every context will ask you to look in different places, and not every project will be the same, but it'd be interesting to see what that model would look like, but for now, I'm happy with the world open, of course it creates all the problems you've stated. Design has grown in a way that it's so big, that I don't know I'd want to enclose it.

Participant E: But it's getting unmanageable now.

Participant G: How do we name our department, our majors...It's not design alone, it's VCD now. By saying experience design now, and design is now becoming different disciplines with different focuses, not just one anymore.

Facilitator: I find the next question would come if we are so focused on the other terms that are connected to the word design, if it's VCD, experience design, interior design, fashion design, they all have design at the end, and so to me it'd mean, that we are being quite explicit about our language, that there's something in common between all of them, and I'd want to know what's common. And if we are broadening design to what some people are saying, then why don't we call Engineering "Engineering design," why don't we call what a doctor does as Health science Design, or a politician a law designer.

Participant G: Well, people talk about policy design as the planning or the framework they use.

Facilitator: So all these disciplines are using the word design but is it the same way we are using it? I'm not convinced of that, and that's exactly where I feel Per Galle talks about the insidious inconsistency, that we have all these other disciplines using the term design like CS in software design, I'm curious whether they are using it in the same way...

Participant E: All you have to do is watch HGTV for an hour to see it's not the same...we need to rebrand ourselves!

Participant G: Everything seems to be a design. When did it start? And why do we feel so protective of it? Is it ours? If it is ours, and we use it in this way, however when we talk to people that aren't in our discipline, they won't understand it, for them it's the design on the tile in their bathroom.

Participant F: The foundation students they need to have an understanding, even though they are in design, in concept or process, this is the first discussion that we have in the class, and being all brand new students, they define design, they have to understand that there are a certain order of tasks they have to do prior to getting to the project, that it's not just the finished results.

Participant G: I think the definition will help us also with curriculum development. The whole problem is based on what is design. If we are not clear in our meanings, some people have different backgrounds, and it becomes a challenge. It's even a question, what is design, when they hire you here. You need to talk about what is design, and I had to rethink about what I had to say - we are testing you here, tell us what is design? Is it the pattern on your bathroom tile? I think for education, it is the foundation of what we do, so it is important.

Participant F: I always ask students, what do you tell people you do when you tell them you are design student? How do you explain that to them, to your grandma? They say, oh well, you make pretty pictures? Well, no, it's more than that, it's a problem-solving process you go through.

Participant E: I think that's another important aspect of what you're doing here – not only do we need to collectively interact together, but how we project ourselves outward is another thing if there isn't a common understanding.

Participant G: That's why it's beyond the computer. Say when someone buys a computer and they aren't a designer, then they are just using the computer, they are making things with a computer, but it doesn't translate into what we think of design. Design is bigger, and it's well informed and it's researched, it's tested, we care about the person who uses the end product, there are so many parts to it. Even for students in their first year, it's surprising for them to learn that.

Appendix J

Notice of Ethics Delegated Approval

UNIVERSITY OF ALBERTA | **Arts, Science, Law Research Ethics Board**

ASL REB Research Ethics Office
308 Campus Tower
8625-112 Street, Edmonton, AB T6G 2E1

Phone: 780-492-2614

Notification of Ethics Delegated Approval

Study ID	Pro00015941
Study Title:	What methods and tools can design researchers and educators use to facilitate constructive discussions about the definition of design?
Study Investigator:	Robert Andruchow
Supervisor:	Aidan Rowe
Approval Expiry Date	November 1, 2011

Thank you for submitting the application above to the Arts, Science, Law REB. Kimberly Noels has reviewed your application for human research ethics and finds that your proposed research meets the University of Alberta standards for research involving human participants (GFC Policy Section 66). On behalf of the Arts, Science, Law REB, I am providing **delegated research ethics approval** for your proposed research.

The research ethics approval is valid for one year and will expire on November 1, 2011.

A request for renewal must be submitted prior to the expiry of this approval if your study still requires ethics approval at that time. If you do not renew before the renewal expiry date, you will have to re-submit an ethics application.

If there are changes to the project that need to be reviewed, please file an amendment. If any adverse effects to human participants are encountered in your research, please contact the undersigned immediately.

Sincerely,

Dr. Nancy Lovell
Chair, Arts, Science, Law REB

Note: This correspondence includes an electronic signature (validation and approval via an online system).

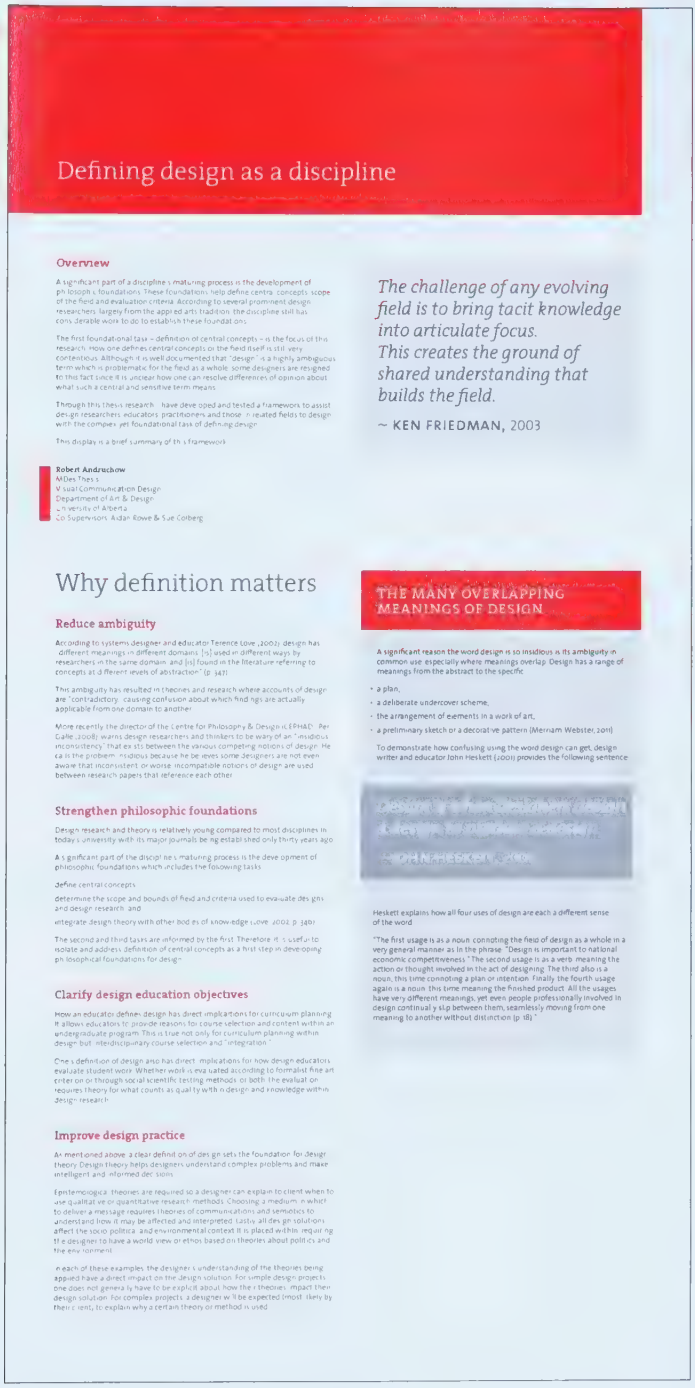
Appendix K

Thesis Visual Presentation: Display Panels

On-Location Photo

Thesis Visual Presentation: Display Panels

Panel 1 Detail



Defining design as a discipline

Overview

A significant part of a discipline's maturing process is the development of philosophical foundations. These foundations help define central concepts, scope of the field and evaluation criteria. According to several prominent design researchers, largely from the applied arts tradition, the discipline still has considerable work to do to establish these foundations.

The first foundational task – definition of central concepts – is the focus of this research. How one defines central concepts of the field itself is still very contentious. Although it is well documented that "design" is a highly ambiguous term which is problematic for the field as a whole, some designers are resigned to this fact since it is unclear how one can resolve differences of opinion about what such a central and sensitive term means.

Through this thesis research, I have developed and tested a framework to assist design researchers, educators, practitioners and those in related fields to design with the complex, yet foundational task of defining design.

This display is a brief summary of this framework.

The challenge of any evolving field is to bring tacit knowledge into articulate focus. This creates the ground of shared understanding that builds the field.

~ KEN FRIEDMAN, 2003

Robert Andruchow
MDes Thesis
Visual Communication Design
Department of Art & Design
University of Alberta
Co Supervisors: Aidan Rowe & Sue Corbett

Why definition matters

Reduce ambiguity

According to systems designer and educator Terence Love (2002), design has "different meanings in different domains, [is] used in different ways by researchers in the same domain, and [is] found in the literature referring to concepts at different levels of abstraction" (p. 347).

This ambiguity has resulted in theories and research where accounts of design are "contradictory, causing confusion about which findings are actually applicable from one domain to another."

More recently, the director of the Centre for Philosophy & Design (CEPHAD), Per Galle, (2008) warns design researchers and thinkers to be wary of an "insidious inconsistency" that exists between the various competing notions of design. He calls it the problem. Insidious because he believes some designers are not even aware that inconsistent or worse, incompatible notions of design are used between research papers that reference each other.

Strengthen philosophic foundations

Design research and theory is relatively young compared to most disciplines in today's university, with its major journals being established only thirty years ago.

A significant part of the discipline's maturing process is the development of philosophic foundations which includes the following tasks:

Define central concepts

determine the scope and bounds of field and criteria used to evaluate designs and design research; and

integrate design theory with other bodies of knowledge (Love, 2002, p. 340).

The second and third tasks are informed by the first. Therefore it is useful to isolate and address definition of central concepts as a first step in developing philosophical foundations for design.

Clarify design education objectives

How an educator defines design has direct implications for curriculum planning. It allows educators to provide reasons for course selection and content within an undergraduate program. This is true not only for curriculum planning within design but interdisciplinary course selection and "integration."

One's definition of design also has direct implications for how design educators evaluate student work. Whether work is evaluated according to formalist fine art criteria or through social scientific testing methods or both, the evaluation requires theory for what counts as quality within design and knowledge within design research.

Improve design practice

As mentioned above, a clear definition of design sets the foundation for design theory. Design theory helps designers understand complex problems and make intelligent and informed decisions.

Epistemological theories are required so a designer can explain to client when to use qualitative or quantitative research methods. Choosing a medium in which to deliver a message requires theories of communications and semiotics to understand how it may be affected and interpreted. Lastly, all design solutions affect the socio-political and environmental context it is placed within, requiring the designer to have a world view or ethos based on theories about politics and the environment.

In each of these examples, the designer's understanding of the theories being applied have a direct impact on the design solution. For simple design projects, one does not generally have to be explicit about how the theories impact their design solution. For complex projects, a designer will be expected (most likely by their client), to explain why a certain theory or method is used.

THE MANY OVERLAPPING MEANINGS OF DESIGN

A significant reason the word design is so insidious is its ambiguity in common use, especially where meanings overlap. Design has a range of meanings from the abstract to the specific:

- a plan,
- a deliberate undercover scheme,
- the arrangement of elements in a work of art,
- a preliminary sketch or a decorative pattern (Merriam Webster, 2011).

To demonstrate how confusing using the word design can get, design writer and educator John Heskett (2001) provides the following sentence:

[redacted]

Heskett explains how all four uses of design are each a different sense of the word:

"The first usage is as a noun, connoting the field of design as a whole in a very general manner as in the phrase "Design is important to national economic competitiveness." The second usage is as a verb, meaning the action or thought involved in the act of designing. The third also is a noun, this time connoting a plan or intention. Finally, the fourth usage again is a noun, this time meaning the finished product. All the usages have very different meanings, yet even people professionally involved in design continually slip between them, seamlessly moving from one meaning to another without distinction (p. 18)."

Thesis Visual Presentation: Display Panels

Panel 2 Detail

Define

Understanding definition

Clarify your purpose

One of the critiques of the process of defining design is that it serves no purpose This alone can be a source of disagreement among discussants But as the first panel demonstrates there are clear and specific situations for when a definition of design is important Prior to engaging in a discussion about the definition of design a first step is to agree on its value in relation to a specific purpose Without this understanding discussants may see the whole endeavour as moot Importantly one doesn't have to choose a definition that satisfies all types of design Instead one can choose a definition that satisfies one's practical end A criteria for evaluating proposed definitions can be developed based on how well it attains this practical end

Types & approaches

Definition is full of complexities Due to the great difference in purpose of and method used between all type of definition and bi definitional approach it is essential that prior to all formal discussions about definition discussants be informed of these difficulties and state their approach If this is not done and discussants jump straight into the process of definition with no knowledge of these dilemmas it is likely that these dilemmas will cause great confusion and even conflict about the proposed definitions Clarifying one's starting position will allow discussants to determine whether their differences lay in more fundamental issues than a simple difference of opinion regarding proposed definitions

Stipulative & pragmatic approach

I propose that designers approach definition from a pragmatic perspective seeing definition as a proposal for new usage that must be negotiated by designers according to the purposes of definition that they collectively determine This community of designers could be small (a school faculty determining a definition or vision of design for curriculum development) or large (determining a common usage for a community of researchers) This approach assumes that definition is nominal and therefore avoids metaphysical dilemmas about the "true" or "real" nature of design and instead evaluates proposed definitions based upon practical ends

Two example definitions: Old vs New

1

[A designer] is a planner with an aesthetic sense.

~ BRUNO MUNARI, 1966

2

No longer associated simply with objects and appearances, design is increasingly understood in a much wider sense as the human capacity to plan and produce desired outcomes.

~ BRUCE MAU, 2007

Definitions explained

Old: Design as an applied art

Design wasn't being used to describe a profession until the 1940's Prior to this it was used to refer to a preliminary drawing or a plan As Bruno Munari's definition demonstrates design — in the professional sense — was initially considered an applied art This fits with the historical development of design being born out of the industrial revolution Mass production rendered the craftsman redundant as the production of an artifact was increasingly being done by machines The loss of this artistic and technically skilled role gave rise to a new role of industrial designer as applied artist The Bauhaus under Walter Gropius Wadesh p was one of the first schools to recognize this new role and developed a curriculum based on it To this day most post secondary design education institutions reflect this narrower applied arts definition with foundation courses in the fine arts But as the "new" definitions demonstrates this narrow notion of design is changing

New: Design defined as a plan

Bruce Mau's definition is similar to most definitions of the design profession since the early 1960's It is synonymous with the broadest sense of the term to plan Moving beyond aesthetics is also a common sentiment among researchers and practitioners that define design this broadly Additionally the definition is often broadened to include not just material artifacts as products of design but immaterial artifacts such as environments and systems Importantly this definition fits well with how the term is being used outside of the applied arts context Other fields such as engineering management information systems and education use similar broad definitions of design although they may not consider it a distinct discipline but rather a stage in a process to create something

Thesis Visual Presentation: Display Panels
Panel 3 Detail

Compare

Comparing through visualization

Euler diagram

Below the two definitions have been mapped out in a Euler diagram format. Euler diagrams are made up of a group of shapes that each represent a "set" or "class." How these shapes overlap and encompass each other indicates set or class relationships. For example, in the diagram below, the largest class is "disciplines," which encompasses "discipline subclasses," named by their focus "speculative, applied and executing." These are then further broken down into discipline groups such as the "physical sciences," which is finally broken down into "physics, chemistry and biology."

Species-Genus

The Euler diagram description is also a demonstration of the species-genus method of definition. This method involves establishing what similarities and differences the thing being defined has to other things. The species/genus method of definition is valuable for differentiating design from other activities and then establishing logical consistency between a constellation of terms required to understand the phenomenon of design. Using this method forces one to settle on specific conditions for the term to apply. While it's may run counter to how we experience everyday use of term design, this method allows us to operationalize the definition for our practical end. For those not interested in operationalizing a definition but who would like instead to gain a better understanding of the concept for its own sake, this method still has "immense heuristic value by systematically unraveling the concept." (Carroll, 2006)

Benefits to visualizing

Works well with the species-genus method of definition.

Easy to learn and in most cases already known from some exposure in grade school.

Well suited for designers who are visual thinkers (at least from the applied arts context).

Well suited for brainstorming exercises involving a group of people (i.e. curriculum development session).

What are the major differences?

Are design products material, immaterial or both?

What is significant about the inclusion of immaterial products is that Mau's conception of design becomes the umbrella for all applied disciplines, including the ones not normally considered sub fields of design: genetics, pharmacy, law, social policy and politics.

The breadth of this definition is the most common critique of the definition (Bamford 2009). In the context of curriculum development it is difficult to see what introductory courses could be created to prepare students for such a wide array of problems. Additionally, this definition of design creates a host of difficult questions about how design education might integrate with other well-established disciplines such as engineering, genetics, pharmacy, law and social policy development.

Clearly, there is an important similarity between a lot of the "applied" disciplines but due to the complexity of each subdiscipline and disparity of methods used between each, could any education program realistically cover so much terrain in four years?

Artistic or aesthetic focus?

Mau's definition does not give priority to the traditional role designers had played in the marrying of form and function or art and technology. This is important because it means no definition makes no distinction between engineering and design. Most importantly, it creates an identity crisis for those disciplines that do still focus on the aesthetic aspects of artifacts. Architecture, industrial design, fashion design, graphic design, etc. What do we call this group of disciplines if according to Mau, design is considered something much broader?

For Mau, the aesthetic connection is clear. This sits well with how most schools introduce students to design and how popular culture views design, especially through the prominence of interior design and fashion design television programs.

This definition though, makes no specific mention of the social sciences. Since the days of the Bauhaus, the social sciences has become more established as a discipline and grown in its influence. As this influence grew, designers have employed social science methods to test and evaluate the effectiveness of design solutions. This strong link could be reflected in the first diagram in the red "Design" line was expanded to the left so it appears under the "Social Sciences" and the "Fine Arts."

Thesis Visual Presentation: Display Panels

Panel 4 Detail

Discuss

Not just for philosophers

Designers must play a role

Key questions

*Is this definition too **narrow**?*
*Is design an applied art & **applied social science**?*

*Is this definition too **broad**?*
*Are we losing the **art** in design?*

To discuss and learn more, visit:

www.defining-design.net

Appendix L

Thesis Visual Presentation: Website Homepage

http://defining-design.net